



## SEQUENCE LISTING

<110> ELLIOTT, VICKI S.  
KHARE, REENA  
RICHARDSON, THOMAS W.  
MARQUIS, JOSEPH P.  
SWARNAKAR, ANITA  
HAFALIA, APRIL J.A.  
BECHA, SHANYA D.  
CHAWLA-WALIA, NARINDER K.  
BAUGHN, MARIAH R.  
LEE, SOO YEUN  
TRAN, UYEN K.  
YUE, HENRY  
NGUYEN, DANNIEL B.  
THORNTON, MICHAEL B.  
GURURAJAN, RAJAGOPAL  
GANDHI, AMEENA R.  
LU, YAN  
YAO, MONIQUE G.  
LI, JOANA X.  
LUO, WEN  
LEE, ERNESTINE A.  
FORSYTHE, IAN J.  
ISON, CRAIG H.  
WILSON, AMY D.  
JIN, PEI

<120> KINASES AND PHOSPHATASES

<130> 039386-2277

<140> 10/554,917

<141> 2007-04-27

<150> PCT/US04/09215

<151> 2004-03-24

<150> 60/528,750

<151> 2003-12-10

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<151> 2003-11-20

<150> 60/494,656

<151> 2003-08-12

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<151> 2003-05-09

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<151> 2003-04-30

<160> 87

<170> PatentIn version 3.5

<210> 1

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<212> PRT

<213> Homo sapiens

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Lys Gly Thr Leu Leu Ile Arg Asn Gly Ser Glu Thr Thr Trp Leu Ser  
35 40 45

Leu Cys Thr Ala Met Ser Pro Leu Thr Thr Glu Ile Trp Ala Leu Arg  
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Arg Gly Asn Ser Ser Ala Ser Trp Ser Arg Ala Ala Ser Gly Gly Arg  
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Arg Ser Pro

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<213> Homo sapiens

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Phe Val Met Glu Glu Gly Arg Lys Ala Arg Gly Thr Gly Glu Leu Thr  
20 25 30

Gln Leu Leu Asn Ser Leu Cys Thr Ala Val Lys Ala Ile Ser Ser Ala  
35 40 45

Val Arg Lys Ala Gly Ile Ala His Leu Tyr Gly Ile Ala Gly Ser Thr  
50 55 60

Asn Val Thr Gly Asp Gln Val Lys Lys Leu Asp Val Leu Ser Asn Asp  
65 70 75 80

Leu Val Met Asn Met Leu Lys Ser Ser Phe Ala Thr Cys Val Leu Val  
85 90 95

Ser Glu Glu Asp Lys His Ala Ile Ile Val Glu Pro Glu Lys Arg Gly  
100 105 110

Lys Tyr Val Val Cys Phe Asp Pro Leu Asp Gly Ser Ser Asn Ile Asp  
115 120 125

Cys Leu Val Ser Val Gly Thr Ile Phe Gly Ile Tyr Arg Lys Lys Ser  
130 135 140

Thr Asp Glu Pro Ser Glu Lys Asp Ala Leu Gln Pro Gly Arg Asn Leu  
145 150 155 160

Val Ala Ala Gly Tyr Ala Leu Tyr Gly Ser Ala Thr Met Leu Val Leu  
165 170 175

Ala Met Asp Cys Gly Val Asn Cys Phe Met Leu Asp Pro Asp Asn Ser  
180 185 190

Ala Pro Tyr Gly Ala Arg Tyr Val Gly Ser Met Val Ala Asp Val His  
195 200 205

Arg Thr Leu Val Tyr Gly Gly Ile Phe Leu Tyr Pro Ala Asn Lys Lys  
210 215 220

Ser Pro Asn Gly Lys Leu Arg Leu Leu Tyr Glu Cys Asn Pro Met Ala  
225 230 235 240

Tyr Val Met Glu Lys Ala Gly Gly Met Ala Thr Thr Gly Lys Glu Ala  
245 250 255

Val Leu Asp Val Ile Pro Thr Asp Ile His Gln Arg Ala Pro Val Ile  
260 265 270

Leu Gly Ser Pro Asp Asp Val Leu Glu Phe Leu Lys Val Tyr Glu Lys  
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His Ser Ala Gln  
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Val Cys Met Thr Asn Cys Pro Thr Leu Ile Val Met Val Gly Leu Pro  
 35 40 45

Ala Arg Gly Lys Thr Tyr Ile Ser Lys Lys Leu Thr Arg Tyr Leu Asn  
 50 55 60

Trp Ile Gly Val Pro Thr Arg Glu Phe Asn Val Gly Gln Tyr Arg Arg  
 65 70 75 80

Asp Val Val Lys Thr Tyr Lys Ser Phe Glu Phe Phe Leu Pro Asp Asn  
 85 90 95

Glu Glu Gly Leu Lys Ile Arg Lys Gln Cys Ala Leu Ala Ala Leu Arg  
 100 105 110

Asp Val Arg Arg Phe Leu Ser Glu Glu Gly Gly His Val Ala Val Phe  
 115 120 125

Asp Ala Thr Asn Thr Thr Arg Glu Arg Arg Ala Thr Ile Phe Asn Phe  
 130 135 140

Gly Glu Gln Asn Gly Tyr Lys Thr Phe Phe Val Glu Ser Ile Cys Val  
 145 150 155 160

Asp Pro Glu Val Ile Ala Ala Asn Ile Val Gln Val Lys Leu Gly Ser  
 165 170 175

Pro Asp Tyr Val Asn Arg Asp Ser Asp Glu Ala Thr Glu Asp Phe Met  
 180 185 190

Arg Arg Ile Glu Cys Tyr Glu Asn Ser Tyr Glu Ser Leu Asp Glu Asp  
 195 200 205

Leu Asp Arg Asp Leu Ser Tyr Ile Lys Ile Met Asp Val Gly Gln Ser  
 210 215 220

Tyr Val Val Asn Arg Val Ala Asp His Ile Gln Ser Arg Ile Val Tyr  
 225 230 235 240

Tyr Leu Met Asn Ile His Val Thr Pro Arg Ser Ile Tyr Leu Cys Arg  
 245 250 255

His Gly Glu Ser Glu Leu Asn Leu Lys Gly Arg Ile Gly Gly Asp Pro  
 260 265 270

Gly Leu Ser Pro Arg Gly Arg Glu Phe Ala Lys Ser Leu Ala Gln Phe  
 275 280 285

Ile Ser Asp Gln Asn Ile Lys Asp Leu Lys Val Trp Thr Ser Gln Met  
 290 295 300

Lys Arg Thr Ile Gln Thr Ala Glu Ala Leu Gly Val Pro Tyr Glu Gln  
 305 310 315 320

Trp Lys Val Leu Asn Glu Ile Asp Ala Ser Tyr Glu Asp Leu Val Gln  
 325 330 335

Arg Leu Glu Pro Val Ile Met Glu Leu Glu Arg Gln Glu Asn Val Leu  
 340 345 350

Val Ile Cys His Gln Ala Val Met Arg Cys Leu Leu Ala Tyr Phe Leu  
 355 360 365

Asp Lys Ala Ala Glu Gln Leu Pro Tyr Leu Lys Cys Pro Leu His Thr  
 370 375 380

Val Leu Lys Leu Thr Pro Val Ala Tyr Gly Cys Lys Val Glu Ser Ile  
 385 390 395 400

Phe Leu Asn Val Ala Ala Val Asn Thr His Arg Asp Arg Pro Gln Asn  
 405 410 415

Val Asp Ile Ser Arg Pro Pro Glu Glu Ala Leu Val Thr Val Pro Ala  
 420 425 430

His Gln

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Leu Ser Gly Asp Leu Gly Gln Leu Pro Thr Gly Ile Arg Asp Phe Val  
 35 40 45

Glu His Ser Ala Arg Leu Cys Gln Pro Glu Gly Ile His Ile Cys Asp  
 50 55 60

Gly Thr Glu Ala Glu Asn Thr Ala Thr Leu Thr Leu Leu Glu Gln Gln  
 65 70 75 80

Gly Leu Ile Arg Lys Leu Pro Lys Tyr Asn Asn Cys Trp Leu Ala Arg  
 85 90 95

Thr Asp Pro Lys Asp Val Ala Arg Val Glu Ser Lys Thr Val Ile Val  
 100 105 110

Thr Pro Ser Gln Arg Asp Thr Val Pro Leu Pro Pro Gly Gly Ala Arg  
 115 120 125

Gly Gln Leu Gly Asn Trp Met Ser Pro Ala Asp Phe Gln Arg Ala Val  
 130 135 140

Asp Glu Arg Phe Pro Gly Cys Met Gln Gly Arg Thr Met Tyr Val Leu  
 145 150 155 160

Pro Phe Ser Met Gly Pro Val Gly Ser Pro Leu Ser Arg Ile Gly Val  
 165 170 175

Gln Leu Thr Asp Ser Ala Tyr Val Val Ala Ser Met Arg Ile Met Thr  
 180 185 190

Arg Leu Gly Thr Pro Val Leu Gln Ala Leu Gly Asp Gly Asp Phe Val  
 195 200 205

Lys Cys Leu His Ser Val Gly Gln Pro Leu Thr Gly Gln Asp Pro Gly  
 210 215 220

His His Gln Pro Cys Arg Glu Glu Ala Leu Cys Gly Ser Arg Leu Pro  
 225 230 235 240

<210> 5

<211> 199

<212> PRT

<213> Homo sapiens

<400> 5

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Asn Ser Pro Thr Met Val Ile Met Val Gly Leu Pro Ala Arg Gly Lys  
 20 25 30

Thr Tyr Ile Ser Thr Lys Leu Thr Arg Tyr Leu Asn Trp Ile Gly Thr  
 35 40 45

Pro Thr Lys Val Phe Asn Leu Gly Gln Tyr Arg Arg Glu Ala Val Ser  
 50 55 60

Tyr Lys Asn Tyr Glu Phe Phe Leu Pro Asp Asn Met Glu Ala Leu Gln  
 65 70 75 80

Ile Arg Lys Gln Cys Ala Leu Ala Ala Leu Lys Asp Val His Asn Tyr  
 85 90 95

Leu Ser His Glu Glu Gly His Val Ala Val Phe Asp Ala Thr Asn Thr  
 100 105 110

Thr Arg Glu Arg Arg Ser Leu Ile Leu Gln Phe Ala Lys Glu His Gly  
 115 120 125

Tyr Lys Val Phe Phe Ile Glu Ser Ile Cys Asn Asp Pro Gly Ile Ile  
 130 135 140

Ala Glu Asn Ile Arg Gln Val Lys Leu Gly Ser Pro Asp Tyr Ile Asp  
 145 150 155 160

Cys Asp Arg Glu Lys Val Leu Glu Asp Phe Leu Lys Arg Ile Glu Cys  
 165 170 175

Tyr Glu Val Asn Tyr Gln Pro Leu Asp Glu Glu Leu Asp Arg Ser Ser  
                   180                  185                  190

Thr Trp Ala His Ala Thr Trp  
                   195

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 <212> PRT  
 <213> Homo sapiens

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Arg Arg Glu Ala Val Ser Tyr Lys Asn Tyr Glu Phe Phe Leu Pro Asp  
                   20                  25                  30

Asn Met Glu Ala Leu Gln Ile Arg Lys Gln Cys Ala Leu Ala Ala Leu  
                   35                  40                  45

Lys Asp Val His Asn Tyr Leu Ser His Glu Glu Gly His Val Ala Val  
                   50                  55                  60

Phe Asp Ala Thr Asn Thr Thr Arg Glu Arg Arg Ser Leu Ile Leu Gln  
 65                  70                  75                  80

Phe Ala Lys Glu His Gly Tyr Lys Val Phe Phe Ile Glu Ser Ile Cys  
                   85                  90                  95

Asn Asp Pro Gly Ile Ile Ala Glu Asn Ile Arg Gln Val Lys Leu Gly  
                   100                  105                  110

Ser Pro Asp Tyr Ile Asp Cys Asp Arg Glu Lys Val Leu Glu Asp Phe  
                   115                  120                  125

Leu Lys Arg Ile Glu Cys Tyr Glu Val Asn Tyr Gln Pro Leu Asp Glu  
                   130                  135                  140

Glu Leu Asp Ser His Leu Ser Tyr Ile Lys Ile Phe Asp Val Gly Thr  
 145                  150                  155                  160

Arg Tyr Met Val Asn Arg Val Gln Asp His Ile Gln Ser Arg Thr Val  
                   165                  170                  175



Tyr Tyr Leu Met Asn Ile His Val Thr Pro Arg Ser Ile Tyr Leu Cys  
 180 185 190

Arg His Gly Glu Ser Glu Leu Asn Ile Arg Gly Arg Ile Gly Gly Asp  
 195 200 205

Ser Gly Leu Ser Val Arg Gly Lys Gln Tyr Ala Tyr Ala Leu Ala Asn  
 210 215 220

Phe Ile Gln Ser Gln Gly Ile Ser Ser Leu Lys Val Trp Thr Ser His  
 225 230 235 240

Met Lys Arg Thr Ile Gln Thr Ala Glu Ala Leu Gly Val Pro Tyr Glu  
 245 250 255

Gln Trp Lys Ala Leu Asn Glu Ile Asp Ala Gly Val Cys Glu Glu Met  
 260 265 270

Thr Tyr Glu Glu Ile Gln Glu His Tyr Pro Glu Glu Phe Ala Leu Arg  
 275 280 285

Asp Gln Asp Lys Tyr Arg Tyr Arg Tyr Pro Lys Gly Glu Ser Tyr Glu  
 290 295 300

Asp Leu Val Gln Arg Leu Glu Pro Val Ile Met Glu Leu Glu Arg Gln  
 305 310 315 320

Glu Asn Val Leu Val Ile Cys His Gln Ala Val Met Arg Cys Leu Leu  
 325 330 335

Ala Tyr Phe Leu Asp Lys Ser Ser Asp Glu Leu Pro Tyr Leu Lys Cys  
 340 345 350

Pro Leu His Thr Val Leu Lys Leu Thr Pro Val Ala Tyr Gly Cys Lys  
 355 360 365

Val Glu Ser Ile Tyr Leu Asn Val Glu Thr Val Asn Thr His Arg Glu  
 370 375 380

Lys Pro Glu Asn Val Asp Ile Thr Arg Glu Pro Glu Glu Ala Leu Asp  
 385 390 395 400

Thr Val Pro Ala His Tyr  
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Asn Ser Pro Thr Met Val Ile Met Val Gly Leu Pro Ala Arg Gly Lys  
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Thr Tyr Ile Ser Thr Lys Leu Thr Arg Tyr Leu Asn Trp Ile Gly Thr  
35 40 45

Pro Thr Lys Asp Asn Met Glu Ala Leu Gln Ile Arg Lys Gln Cys Ala  
50 55 60

Leu Ala Ala Leu Lys Asp Val His Asn Tyr Leu Ser His Glu Glu Gly  
65 70 75 80

His Val Ala Val Phe Asp Ala Thr Asn Thr Thr Arg Glu Arg Arg Ser  
85 90 95

Leu Ile Leu Gln Phe Ala Lys Glu His Gly Tyr Lys Val Phe Phe Ile  
100 105 110

Glu Ser Ile Cys Asn Asp Pro Gly Ile Ile Ala Glu Asn Ile Arg Gln  
115 120 125

Val Lys Leu Gly Ser Pro Asp Tyr Ile Asp Cys Asp Arg Glu Lys Val  
130 135 140

Leu Glu Asp Phe Leu Lys Arg Ile Glu Cys Tyr Glu Val Asn Tyr Gln  
145 150 155 160

Pro Leu Asp Glu Glu Leu Asp Ser His Leu Ser Tyr Ile Lys Ile Phe  
165 170 175

Asp Val Gly Thr Arg Tyr Met Val Asn Arg Val Gln Asp His Ile Gln  
180 185 190

Ser Arg Thr Val Tyr Tyr Leu Met Asn Ile His Val Thr Pro Arg Ser  
 195 200 205

Ile Tyr Leu Cys Arg His Gly Glu Ser Glu Leu Asn Ile Arg Gly Arg  
 210 215 220

Ile Gly Gly Asp Ser Gly Leu Ser Val Arg Gly Lys Gln Tyr Ala Tyr  
 225 230 235 240

Ala Leu Ala Asn Phe Ile Gln Ser Gln Gly Ile Ser Ser Leu Lys Val  
 245 250 255

Trp Thr Ser His Met Lys Arg Thr Ile Gln Thr Ala Glu Ala Leu Gly  
 260 265 270

Val Pro Tyr Glu Gln Trp Lys Ala Leu Asn Glu Ile Asp Ala Gly Val  
 275 280 285

Cys Glu Glu Met Thr Tyr Glu Glu Ile Arg Glu His Tyr Pro Glu Glu  
 290 295 300

Phe Ala Leu Arg Asp Gln Asp Lys Tyr Arg Tyr Arg Tyr Pro Lys Gly  
 305 310 315 320

Glu Ser Tyr Glu Asp Leu Val Gln Arg Leu Glu Pro Val Ile Met Glu  
 325 330 335

Leu Glu Arg Gln Glu Asn Val Leu Val Ile Cys His Gln Ala Val Met  
 340 345 350

Arg Cys Leu Leu Ala Tyr Phe Leu Asp Lys Ser Ser Asp Glu Leu Pro  
 355 360 365

Tyr Leu Lys Cys Pro Leu His Thr Val Leu Lys Leu Thr Pro Val Ala  
 370 375 380

Tyr Gly Cys Lys Val Glu Ser Ile Tyr Leu Asn Val Glu Ala Val Asn  
 385 390 395 400

Thr His Arg Glu Lys Pro Glu Asn Val Asp Ile Thr Arg Glu Pro Glu  
 405 410 415

Glu Ala Leu Asp Thr Val Pro Ala His Tyr  
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<210> 8  
 <211> 355  
 <212> PRT  
 <213> Homo sapiens

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Ala Ser Asp Pro Leu Leu Ser Val Leu Met Trp Gly Val Asn His Ser  
 35 40 45

Ile Asn Glu Leu Ser His Val Gln Ile Pro Val Met Leu Met Pro Asp  
 50 55 60

Asp Phe Lys Ala Tyr Ser Lys Ile Lys Val Asp Asn His Leu Phe Asn  
 65 70 75 80

Lys Glu Asn Met Pro Ser His Phe Lys Phe Lys Glu Tyr Cys Pro Met  
 85 90 95

Val Phe Arg Asn Leu Arg Glu Arg Phe Gly Ile Asp Asp Gln Asp Phe  
 100 105 110

Gln Tyr Ile Val Glu Cys His Gly Ile Thr Leu Leu Pro Gln Phe Leu  
 115 120 125

Gly Met Tyr Arg Leu Asn Val Asp Gly Val Glu Ile Tyr Val Ile Val  
 130 135 140

Thr Arg Asn Val Phe Ser His Arg Leu Ser Val Tyr Arg Lys Tyr Asp  
 145 150 155 160

Leu Lys Gly Ser Thr Val Ala Arg Glu Ala Ser Asp Lys Glu Lys Ala  
 165 170 175

Lys Glu Leu Pro Thr Leu Lys Asp Asn Asp Phe Ile Asn Glu Gly Gln  
 180 185 190

Lys Ile Tyr Ile Asp Asp Asn Asn Lys Lys Val Phe Leu Glu Lys Leu  
 195 200 205

Lys Lys Asp Val Glu Phe Leu Ala Gln Leu Lys Leu Met Asp Tyr Ser  
 210 215 220

Leu Leu Val Gly Ile His Asp Val Glu Arg Ala Glu Gln Glu Glu Val  
 225 230 235 240

Glu Cys Glu Glu Asn Asp Gly Glu Glu Glu Gly Glu Ser Asp Gly Thr  
 245 250 255

His Pro Val Gly Thr Pro Pro Asp Ser Pro Gly Asn Thr Leu Asn Ser  
 260 265 270

Ser Pro Pro Leu Ala Pro Gly Glu Phe Asp Pro Asn Ile Asp Val Tyr  
 275 280 285

Gly Ile Lys Cys His Glu Asn Ser Pro Arg Lys Glu Val Tyr Phe Met  
 290 295 300

Ala Ile Ile Asp Ile Leu Thr His Tyr Asp Ala Lys Lys Lys Ala Ala  
 305 310 315 320

His Ala Ala Lys Thr Val Lys His Gly Ala Gly Ala Glu Ile Ser Thr  
 325 330 335

Val Asn Pro Glu Gln Tyr Ser Lys Arg Phe Leu Asp Phe Ile Gly His  
 340 345 350

Ile Leu Thr  
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<211> 543

<212> PRT

<213> Homo sapiens

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Gly Gly Pro Glu Pro Thr Arg Asn Gly Val Asp Pro Pro Pro Arg Ala  
 35 40 45

Arg Ala Ala Ser Val Ile Pro Gly Ser Thr Ser Arg Leu Leu Pro Ala  
 50 55 60

Arg Pro Ser Leu Ser Ala Arg Lys Leu Ser Leu Gln Glu Arg Pro Ala  
 65 70 75 80

Gly Ser Tyr Leu Glu Ala Gln Ala Gly Pro Tyr Ala Thr Gly Pro Ala  
 85 90 95

Ser His Ile Ser Pro Arg Ala Trp Arg Arg Pro Thr Ile Glu Ser His  
 100 105 110

His Val Ala Ile Ser Asp Ala Glu Asp Cys Val Gln Leu Asn Gln Tyr  
 115 120 125

Lys Leu Gln Ser Glu Ile Gly Lys Gly Ala Tyr Gly Val Val Arg Pro  
 130 135 140

Ala Tyr Asn Glu Ser Glu Asp Arg His Tyr Ala Met Lys Val Leu Ser  
 145 150 155 160

Lys Lys Lys Leu Leu Lys Gln Tyr Gly Phe Pro Arg Arg Pro Pro Pro  
 165 170 175

Arg Gly Ser Gln Ala Ala Gln Gly Gly Pro Ala Lys Gln Leu Leu Pro  
 180 185 190

Leu Glu Arg Val Tyr Gln Glu Ile Ala Ile Leu Lys Lys Leu Asp His  
 195 200 205

Val Asn Val Val Lys Leu Ile Glu Val Leu Asp Asp Pro Ala Glu Asp  
 210 215 220

Asn Leu Tyr Leu Ala Leu Gln Asn Gln Ala Gln Asn Ile Gln Leu Asp  
 225 230 235 240

Ser Thr Asn Ile Ala Lys Pro His Ser Leu Leu Pro Ser Glu Gln Gln  
 245 250 255

Asp Ser Gly Ser Thr Trp Ala Ala Arg Ser Val Phe Asp Leu Leu Arg  
 260 265 270

Lys Gly Pro Val Met Glu Val Pro Cys Asp Lys Pro Phe Ser Glu Glu  
 275 280 285

Gln Ala Arg Leu Tyr Leu Arg Asp Val Ile Leu Gly Leu Glu Tyr Leu  
 290 295 300

His Cys Gln Lys Ile Val His Arg Asp Ile Lys Pro Ser Asn Leu Leu  
 305 310 315 320

Leu Gly Asp Asp Gly His Val Lys Ile Ala Asp Phe Gly Val Ser Asn  
 325 330 335

Gln Phe Glu Gly Asn Asp Ala Gln Leu Ser Ser Thr Ala Gly Thr Pro  
 340 345 350

Ala Phe Met Ala Pro Glu Ala Ile Ser Asp Ser Gly Gln Ser Phe Ser  
 355 360 365

Gly Lys Ala Leu Asp Val Trp Ala Thr Gly Val Thr Leu Tyr Cys Phe  
 370 375 380

Val Tyr Gly Lys Cys Pro Phe Ile Asp Asp Phe Ile Leu Ala Leu His  
 385 390 395 400

Arg Lys Ile Lys Asn Glu Pro Val Val Phe Pro Glu Gly Pro Glu Ile  
 405 410 415

Ser Glu Glu Leu Lys Asp Leu Ile Leu Lys Met Leu Asp Lys Asn Pro  
 420 425 430

Glu Thr Arg Ile Gly Val Pro Asp Ile Lys Leu His Pro Trp Val Thr  
 435 440 445

Lys Asn Gly Glu Glu Pro Ile Pro Ser Glu Glu Glu His Cys Ser Val  
 450 455 460

Val Glu Val Thr Glu Glu Glu Val Lys Asn Ser Val Arg Leu Ile Pro  
 465 470 475 480

Ser Trp Thr Thr Val Ile Leu Val Lys Ser Met Leu Arg Lys Arg Ser  
 485 490 495

Phe Gly Asn Pro Phe Glu Pro Gln Ala Arg Arg Glu Glu Arg Ser Met  
 500 505 510

Ser Ala Pro Gly Asn Leu Leu Val Lys Glu Gly Phe Gly Glu Gly Gly  
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Lys Ser Pro Glu Leu Pro Gly Val Gln Glu Asp Glu Ala Ala Ser  
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<210> 10  
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Asp Gln Pro Glu Asp Ala Gly Ser Glu Asp Glu Leu Glu Glu Gly Ala  
           35                                  40                                  45

Met Ile Val Arg Asn Ala Lys Asp Thr Ala His Thr Lys Ala Glu Arg  
       50                                  55                                  60

Asn Ile Leu Glu Glu Val Lys His Pro Phe Ile Val Asp Leu Ile Tyr  
 65                                  70                                  75                                  80

Ala Phe Gln Thr Gly Gly Lys Leu Tyr Leu Ile Leu Glu Tyr Leu Ser  
           85                                  90                                  95

Gly Gly Glu Leu Phe Met Gln Leu Glu Arg Glu Gly Ile Phe Met Glu  
           100                                  105                                  110

Asp Thr Ala Cys Phe Tyr Leu Ala Glu Ile Ser Met Ala Leu Gly His  
           115                                  120                                  125

Leu His Gln Lys Gly Ile Ile Tyr Arg Asp Leu Lys Pro Glu Asn Ile  
       130                                  135                                  140

Met Leu Asn His Gln Gly His Val Lys Leu Thr Asp Phe Gly Leu Cys  
 145                                  150                                  155                                  160

Lys Glu Ser Ile His Asp Gly Thr Val Thr His Thr Phe Cys Gly Thr  
           165                                  170                                  175



Ile Glu Tyr Met Ala Pro Glu Ile Leu Met Arg Ser Gly His Asn Arg  
 180 185 190

Ala Val Asp Trp Trp Ser Leu Gly Ala Leu Met Tyr Asp Met Leu Thr  
 195 200 205

Gly Ala Pro Pro Phe Thr Gly Glu Asn Arg Lys Lys Thr Ile Asp Lys  
 210 215 220

Ile Leu Lys Cys Lys Leu Asn Leu Pro Pro Tyr Leu Thr Gln Glu Ala  
 225 230 235 240

Arg Asp Leu Leu Lys Lys Leu Leu Lys Arg Asn Ala Ala Ser Arg Leu  
 245 250 255

Gly Ala Gly Pro Gly Asp Ala Gly Glu Val Gln Ala His Pro Phe Phe  
 260 265 270

Arg His Ile Asn Trp Glu Glu Leu Leu Ala Arg Lys Val Glu Pro Pro  
 275 280 285

Phe Lys Pro Leu Leu Gln Ser Glu Glu Asp Val Ser Gln Phe Asp Ser  
 290 295 300

Lys Phe Thr Arg Gln Thr Pro Val Asp Ser Pro Asp Asp Ser Thr Leu  
 305 310 315 320

Ser Glu Ser Ala Asn Gln Val Phe Leu Gly Phe Thr Tyr Val Ala Pro  
 325 330 335

Ser Val Leu Glu Ser Val Lys Glu Lys Phe Ser Phe Glu Pro Lys Ile  
 340 345 350

Arg Ser Pro Arg Arg Phe Ile Gly Ser Pro Arg Thr Pro Val Ser Pro  
 355 360 365

Val Lys Phe Ser Pro Gly Asp Phe Trp Gly Arg Gly Ala Ser Ala Ser  
 370 375 380

Ala Ala Asn Pro Gln Thr Pro Val Glu Tyr Pro Met Glu Thr Ser Gly  
 385 390 395 400

Pro Ile Arg Gln Pro Asn Ser Gly Pro Tyr Lys Lys Gln Ala Phe Pro  
420 425 430

Met Ile Ser Lys Arg Pro Glu His Leu Arg Met Asn Leu  
435 440 445

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<210> 11
<211> 1219
<212> PRT
<213> Homo sapiens
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Ser Leu Arg Asp Pro Ala Gly Ile Phe Glu Leu Val Glu Val Val Gly  
20 25 30

Asn Gly Thr Tyr Gly Gln Val Tyr Lys Gly Arg His Val Lys Thr Gly  
35 40 45

Gln Leu Ala Ala Ile Lys Val Met Asp Val Thr Glu Asp Glu Glu Glu  
50 55 60

Glu Ile Lys Leu Glu Ile Asn Met Leu Lys Lys Tyr Ser His His Arg  
65 70 75 80

Asn Ile Ala Thr Tyr Tyr Gly Ala Phe Ile Lys Lys Ser Pro Pro Gly  
85 90 95

His Asp Asp Gln Leu Trp Leu Val Met Glu Phe Cys Gly Ala Gly Ser  
100 105 110

Ile Thr Asp Leu Val Lys Asn Thr Lys Gly Asn Thr Leu Lys Glu Asp  
115 120 125

Trp Ile Ala Tyr Ile Ser Arg Glu Ile Leu Arg Gly Leu Ala His Leu  
130 135 140

His Ile His His Val Ile His Arg Asp Ile Lys Gly Gln Asn Val Leu  
145 150 155 160

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Thr | Glu | Asn | Ala | Glu | Val | Lys | Leu | Val | Asp | Phe | Gly | Val | Ser | Ala |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Gln | Leu | Asp | Gly | Thr | Val | Gly | Arg | Arg | Asn | Thr | Phe | Ile | Gly | Thr | Pro |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Tyr | Trp | Met | Ala | Pro | Glu | Val | Ile | Ala | Cys | Asp | Glu | Asn | Pro | Asp | Ala |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thr | Tyr | Asp | Tyr | Arg | Ser | Asp | Leu | Trp | Ser | Cys | Gly | Ile | Thr | Ala | Ile |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Glu | Met | Gly | Glu | Gly | Ala | Pro | Pro | Leu | Cys | Asp | Met | His | Pro | Met | Arg |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ala | Leu | Phe | Leu | Ile | Pro | Arg | Asn | Pro | Pro | Pro | Arg | Leu | Lys | Ser | Lys |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Lys | Trp | Ser | Lys | Lys | Phe | Phe | Ser | Phe | Ile | Glu | Gly | Cys | Leu | Val | Lys |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Asn | Tyr | Met | Gln | Arg | Pro | Ser | Thr | Glu | Gln | Leu | Leu | Lys | His | Pro | Phe |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ile | Arg | Asp | Gln | Pro | Asn | Glu | Arg | Gln | Val | Arg | Ile | Gln | Leu | Lys | Asp |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| His | Ile | Asp | Arg | Thr | Arg | Lys | Lys | Arg | Gly | Glu | Lys | Asp | Glu | Thr | Glu |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Tyr | Glu | Tyr | Ser | Gly | Ser | Glu | Glu | Glu | Glu | Glu | Glu | Val | Pro | Glu | Gln |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Glu | Gly | Glu | Pro | Ser | Ser | Ile | Val | Asn | Val | Pro | Gly | Glu | Ser | Thr | Leu |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Arg | Arg | Asp | Phe | Leu | Arg | Leu | Gln | Gln | Glu | Asn | Lys | Glu | Arg | Ser | Glu |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Ala | Leu | Arg | Arg | Gln | Gln | Leu | Leu | Gln | Glu | Gln | Gln | Leu | Arg | Glu | Gln |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Glu | Glu | Tyr | Lys | Arg | Gln | Leu | Leu | Ala | Glu | Arg | Gln | Lys | Arg | Ile | Glu |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |

Gln Gln Lys Glu Gln Arg Arg Arg Leu Glu Glu Gln Gln Arg Arg Glu  
 405 410 415

Arg Glu Ala Arg Arg Gln Gln Glu Arg Glu Gln Arg Arg Arg Glu Gln  
 420 425 430

Glu Glu Lys Arg Arg Leu Glu Glu Leu Glu Arg Arg Arg Lys Glu Glu  
 435 440 445

Glu Glu Arg Arg Gln Ala Glu Glu Glu Lys Arg Arg Val Glu Arg Glu  
 450 455 460

Gln Glu Tyr Ile Arg Arg Gln Leu Glu Glu Glu Gln Arg His Leu Glu  
 465 470 475 480

Val Leu Gln Gln Gln Leu Leu Gln Glu Gln Ala Met Leu Leu His Asp  
 485 490 495

His Arg Arg Pro His Pro Gln His Ser Gln Gln Pro Pro Pro Pro Gln  
 500 505 510

Gln Glu Arg Ser Lys Pro Ser Phe His Ala Pro Glu Pro Lys Ala His  
 515 520 525

Tyr Glu Pro Ala Asp Arg Ala Arg Glu Val Pro Val Arg Thr Thr Ser  
 530 535 540

Arg Ser Pro Val Leu Ser Arg Arg Asp Ser Pro Leu Gln Gly Ser Gly  
 545 550 555 560

Gln Gln Asn Ser Gln Ala Gly Gln Arg Asn Ser Thr Ser Ser Ile Glu  
 565 570 575

Pro Arg Leu Leu Trp Glu Arg Val Glu Lys Leu Met Pro Arg Pro Gly  
 580 585 590

Ser Gly Ser Ser Ser Gly Ser Ser Asn Ser Gly Ser Gln Pro Gly Ser  
 595 600 605

His Pro Gly Ser Gln Ser Gly Ser Gly Glu Arg Phe Arg Val Arg Ser  
 610 615 620

Ser Ser Lys Ser Glu Gly Ser Pro Ser Gln Arg Leu Glu Asn Ala Val  
625 630 635 640

Lys Lys Pro Glu Asp Lys Lys Glu Val Phe Arg Pro Leu Lys Pro Ala  
645 650 655

Asp Leu Thr Ala Leu Ala Lys Glu Leu Arg Ala Val Glu Asp Val Arg  
660 665 670

Pro Pro His Lys Val Thr Asp Tyr Ser Ser Ser Ser Glu Glu Pro Gly  
675 680 685

Thr Thr Asp Glu Glu Asp Asp Asp Val Glu Gln Glu Gly Ala Asp Glu  
690 695 700

Ser Thr Ser Gly Pro Glu Asp Thr Arg Ala Ala Ser Ser Leu Asn Leu  
705 710 715 720

Ser Asn Gly Glu Thr Glu Ser Val Lys Thr Met Ile Val His Asp Asp  
725 730 735

Val Glu Ser Glu Pro Ala Met Thr Pro Ser Lys Glu Gly Thr Leu Ile  
740 745 750

Val Arg Gln Ser Thr Val Asp Gln Lys Arg Ala Ser His His Glu Ser  
755 760 765

Asn Gly Phe Ala Gly Arg Ile His Leu Leu Pro Asp Leu Leu Gln Gln  
770 775 780

Ser His Ser Ser Ser Thr Ser Ser Thr Ser Ser Ser Pro Ser Ser Ser  
785 790 795 800

Gln Pro Thr Pro Thr Met Ser Pro Gln Thr Pro Gln Asp Lys Leu Thr  
805 810 815

Ala Asn Glu Thr Gln Ser Ala Ser Ser Thr Leu Gln Lys His Lys Ser  
820 825 830

Ser Ser Ser Phe Thr Pro Phe Ile Asp Pro Arg Leu Leu Gln Ile Ser  
835 840 845

Pro Ser Ser Gly Thr Thr Val Thr Ser Val Val Gly Phe Ser Cys Asp  
850 855 860

Gly Met Arg Pro Glu Ala Ile Arg Gln Asp Pro Thr Arg Lys Gly Ser  
865 870 875 880

Val Val Asn Val Asn Pro Thr Asn Thr Arg Pro Gln Ser Asp Thr Pro  
885 890 895

Glu Ile Arg Lys Tyr Lys Lys Arg Phe Asn Ser Glu Ile Leu Cys Ala  
900 905 910

Ala Leu Trp Gly Val Asn Leu Leu Val Gly Thr Glu Ser Gly Leu Met  
915 920 925

Leu Leu Asp Arg Ser Gly Gln Gly Lys Val Tyr Pro Leu Ile Asn Arg  
930 935 940

Arg Arg Phe Gln Gln Met Asp Val Leu Glu Gly Leu Asn Val Leu Val  
945 950 955 960

Thr Ile Ser Gly Lys Lys Asp Lys Leu Arg Val Tyr Tyr Leu Ser Trp  
965 970 975

Leu Arg Asn Lys Ile Leu His Asn Asp Pro Glu Val Glu Lys Lys Gln  
980 985 990

Gly Trp Thr Thr Val Gly Asp Leu Glu Gly Cys Val His Tyr Lys Val  
995 1000 1005

Val Lys Tyr Glu Arg Ile Lys Phe Leu Val Ile Ala Leu Lys Ser  
1010 1015 1020

Ser Val Glu Val Tyr Ala Trp Ala Pro Lys Pro Tyr His Lys Phe  
1025 1030 1035

Met Ala Phe Lys Ser Phe Gly Glu Leu Val His Lys Pro Leu Leu  
1040 1045 1050

Val Asp Leu Thr Val Glu Glu Gly Gln Arg Leu Lys Val Ile Tyr  
1055 1060 1065

Gly Ser Cys Ala Gly Phe His Ala Val Asp Val Asp Ser Gly Ser  
1070 1075 1080

Val Tyr Asp Ile Tyr Leu Pro Thr His Ile Gln Cys Ser Ile Lys  
1085 1090 1095

Pro His Ala Ile Ile Ile Leu Pro Asn Thr Asp Gly Met Glu Leu  
1100 1105 1110

Leu Val Cys Tyr Glu Asp Glu Gly Val Tyr Val Asn Thr Tyr Gly  
1115 1120 1125

Arg Ile Thr Lys Asp Val Val Leu Gln Trp Gly Glu Met Pro Thr  
1130 1135 1140

Ser Val Ala Tyr Ile Arg Ser Asn Gln Thr Met Gly Trp Gly Glu  
1145 1150 1155

Lys Ala Ile Glu Ile Arg Ser Val Glu Thr Gly His Leu Asp Gly  
1160 1165 1170

Val Phe Met His Lys Arg Ala Gln Arg Leu Lys Phe Leu Cys Glu  
1175 1180 1185

Arg Asn Asp Lys Val Phe Phe Ala Ser Val Arg Ser Gly Gly Ser  
1190 1195 1200

Ser Gln Val Tyr Phe Met Thr Leu Gly Arg Thr Ser Leu Leu Ser  
1205 1210 1215

Trp

<210> 12

<211> 1168

<212> PRT

<213> Homo sapiens

<400> 12

Met Ala Ser Asp Ser Pro Ala Arg Ser Leu Asp Glu Ile Asp Leu Ser  
1 5 10 15

Ala Leu Arg Asp Pro Ala Gly Ile Phe Glu Leu Val Glu Leu Val Gly  
20 25 30

Asn Gly Thr Tyr Gly Gln Val Tyr Lys Gly Arg His Val Lys Thr Gly  
35 40 45

Gln Leu Ala Ala Ile Lys Val Met Asp Val Thr Gly Asp Glu Glu Glu  
 50 55 60

Glu Ile Lys Gln Glu Ile Asn Met Leu Lys Lys Tyr Ser His His Arg  
 65 70 75 80

Asn Ile Ala Thr Tyr Tyr Gly Ala Phe Ile Lys Lys Asn Pro Pro Gly  
 85 90 95

Met Asp Asp Gln Leu Trp Leu Val Met Glu Phe Cys Gly Ala Gly Ser  
 100 105 110

Val Thr Asp Leu Ile Lys Asn Thr Lys Gly Asn Thr Leu Lys Glu Glu  
 115 120 125

Trp Ile Ala Tyr Ile Cys Arg Glu Ile Leu Arg Gly Leu Ser His Leu  
 130 135 140

His Gln His Lys Val Ile His Arg Asp Ile Lys Gly Gln Asn Val Leu  
 145 150 155 160

Leu Thr Glu Asn Ala Glu Val Lys Leu Val Asp Phe Gly Val Ser Ala  
 165 170 175

Gln Leu Asp Arg Thr Val Gly Arg Arg Asn Thr Phe Ile Gly Thr Pro  
 180 185 190

Tyr Trp Met Ala Pro Glu Val Ile Ala Cys Asp Glu Asn Pro Asp Ala  
 195 200 205

Thr Tyr Asp Phe Lys Ser Asp Leu Trp Ser Leu Gly Ile Thr Ala Ile  
 210 215 220

Glu Met Ala Glu Gly Ala Pro Pro Leu Cys Asp Met His Pro Met Arg  
 225 230 235 240

Ala Leu Phe Leu Ile Pro Arg Asn Pro Ala Pro Arg Leu Lys Ser Lys  
 245 250 255

Lys Trp Ser Lys Lys Phe Gln Ser Phe Ile Glu Ser Cys Leu Val Lys  
 260 265 270

Asn His Ser Gln Arg Pro Ala Thr Glu Gln Leu Met Lys His Pro Phe  
 275 280 285



Ile Arg Asp Gln Pro Asn Glu Arg Gln Val Arg Ile Gln Leu Lys Asp  
 290 295 300

His Ile Asp Arg Thr Lys Lys Lys Arg Gly Glu Lys Asp Glu Thr Glu  
 305 310 315 320

Tyr Glu Tyr Ser Gly Ser Glu Glu Glu Glu Glu Glu Asn Asp Ser Gly  
 325 330 335

Glu Pro Ser Ser Ile Leu Asn Leu Pro Gly Glu Ser Thr Leu Arg Arg  
 340 345 350

Asp Phe Leu Arg Leu Gln Leu Ala Asn Lys Glu Arg Ser Glu Ala Leu  
 355 360 365

Arg Arg Gln Gln Leu Glu Gln Gln Gln Arg Glu Asn Glu Glu His Lys  
 370 375 380

Arg Gln Leu Leu Ala Glu Arg Gln Lys Arg Ile Glu Glu Gln Lys Glu  
 385 390 395 400

Gln Arg Arg Arg Leu Glu Glu Ile Pro His Leu Val Ala Val Lys Ser  
 405 410 415

Gln Gly Pro Ala Leu Thr Ala Ser Gln Ser Val His Glu Gln Pro Thr  
 420 425 430

Lys Gly Leu Ser Gly Phe Gln Glu Ala Leu Asn Val Thr Ser His Arg  
 435 440 445

Val Glu Met Pro Arg Gln Asn Ser Asp Pro Thr Ser Glu Asn Pro Pro  
 450 455 460

Leu Pro Thr Arg Ile Glu Lys Phe Asp Arg Ser Ser Trp Leu Arg Gln  
 465 470 475 480

Glu Glu Asp Ile Pro Pro Lys Val Pro Gln Arg Thr Thr Ser Ile Ser  
 485 490 495

Pro Ala Leu Ala Arg Lys Asn Ser Pro Gly Asn Gly Ser Ala Leu Gly  
 500 505 510

Pro Arg Leu Gly Ser Gln Pro Ile Arg Ala Ser Asn Pro Asp Leu Arg  
 515 520 525

Arg Thr Glu Pro Ile Leu Glu Ser Pro Leu Gln Arg Thr Ser Ser Gly  
 530 535 540

Ser Ser Ser Ser Ser Ser Thr Pro Ser Ser Gln Pro Ser Ser Gln Gly  
 545 550 555 560

Gly Ser Gln Pro Gly Ser Gln Ala Gly Ser Ser Gly Arg Thr Arg Val  
 565 570 575

Arg Ala Asn Ser Lys Ser Glu Gly Ser Pro Val Leu Pro His Glu Pro  
 580 585 590

Ala Lys Val Lys Pro Glu Glu Ser Arg Asp Ile Thr Arg Pro Ser Arg  
 595 600 605

Pro Ala Asp Leu Thr Ala Leu Ala Lys Glu Leu Arg Glu Leu Arg Ile  
 610 615 620

Glu Glu Thr Asn Arg Pro Met Lys Lys Val Thr Asp Tyr Ser Ser Ser  
 625 630 635 640

Ser Glu Glu Ser Glu Ser Ser Glu Glu Glu Glu Glu Asp Gly Glu Ser  
 645 650 655

Glu Thr His Asp Gly Thr Val Ala Val Ser Asp Ile Pro Arg Leu Ile  
 660 665 670

Pro Thr Gly Ala Pro Gly Ser Asn Glu Gln Tyr Asn Val Gly Met Val  
 675 680 685

Gly Thr His Gly Leu Glu Thr Ser His Ala Asp Ser Phe Ser Gly Ser  
 690 695 700

Ile Ser Arg Glu Gly Thr Leu Met Ile Arg Glu Thr Ser Gly Glu Lys  
 705 710 715 720

Lys Arg Ser Gly His Ser Asp Ser Asn Gly Phe Ala Gly His Ile Asn  
 725 730 735

Leu Pro Asp Leu Val Gln Gln Ser His Ser Pro Ala Gly Thr Pro Thr  
 740 745 750

Glu Gly Leu Gly Arg Val Ser Thr His Ser Gln Glu Met Asp Ser Gly  
755 760 765

Thr Glu Tyr Gly Met Gly Ser Ser Thr Lys Ala Ser Phe Thr Pro Phe  
770 775 780

Val Asp Pro Arg Val Tyr Gln Thr Ser Pro Thr Asp Glu Asp Glu Glu  
785 790 795 800

Asp Glu Glu Ser Ser Ala Ala Ala Leu Phe Thr Ser Glu Leu Leu Arg  
805 810 815

Gln Glu Gln Ala Lys Leu Asn Glu Ala Arg Lys Ile Ser Val Val Asn  
820 825 830

Val Asn Pro Thr Asn Ile Arg Pro His Ser Asp Thr Pro Glu Ile Arg  
835 840 845

Gln Tyr Lys Lys Arg Phe Asn Ser Glu Ile Leu Cys Ala Ala Leu Trp  
850 855 860

Gly Val Asn Leu Leu Val Gly Thr Glu Asn Gly Leu Met Leu Leu Asp  
865 870 875 880

Arg Ser Gly Gln Gly Lys Val Tyr Asn Leu Ile Asn Arg Arg Arg Phe  
885 890 895

Gln Gln Met Asp Val Leu Glu Gly Leu Asn Val Leu Val Thr Ile Ser  
900 905 910

Gly Lys Lys Asn Lys Leu Arg Val Tyr Tyr Leu Ser Trp Leu Arg Asn  
915 920 925

Arg Ile Leu His Asn Asp Pro Glu Val Glu Lys Lys Gln Gly Trp Ile  
930 935 940

Thr Val Gly Asp Leu Glu Gly Cys Ile His Tyr Lys Val Val Lys Tyr  
945 950 955 960

Glu Arg Ile Lys Phe Leu Val Ile Ala Leu Lys Asn Ala Val Glu Ile  
965 970 975

Tyr Ala Trp Ala Pro Lys Pro Tyr His Lys Phe Met Ala Phe Lys Ser  
                   980                                  985                                  990

Phe Ala Asp Leu Gln His Lys Pro Leu Leu Val Asp Leu Thr Val Glu  
           995                                  1000                                  1005

Glu Gly Gln Arg Leu Lys Val Ile Phe Gly Ser His Thr Gly Phe  
           1010                                  1015                                  1020

His Val Ile Asp Val Asp Ser Gly Asn Ser Tyr Asp Ile Tyr Ile  
           1025                                  1030                                  1035

Pro Ser His Ile Gln Gly Asn Ile Thr Pro His Ala Ile Val Ile  
           1040                                  1045                                  1050

Leu Pro Lys Thr Asp Gly Met Glu Met Leu Val Cys Tyr Glu Asp  
           1055                                  1060                                  1065

Glu Gly Val Tyr Val Asp Thr Tyr Gly Arg Ile Thr Lys Asp Val  
           1070                                  1075                                  1080

Val Leu Gln Trp Gly Glu Met Pro Thr Ser Val Ala Tyr Ile His  
           1085                                  1090                                  1095

Ser Asp Gln Ile Met Gly Trp Gly Glu Lys Ala Ile Glu Ile Arg  
           1100                                  1105                                  1110

Ser Val Glu Thr Gly His Leu Asp Gly Val Phe Met His Lys Arg  
           1115                                  1120                                  1125

Ala Gln Arg Leu Lys Phe Leu Cys Glu Arg Asn Asp Lys Val Phe  
           1130                                  1135                                  1140

Phe Ala Ser Val Arg Ser Gly Gly Ser Ser Gln Val Phe Phe Met  
           1145                                  1150                                  1155

Thr Leu Asn Arg Asn Ser Met Met Asn Trp  
           1160                                  1165

<210> 13

<211> 650

<212> PRT

<213> Homo sapiens

&lt;400&gt; 13

Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala  
 1 5 10 15

Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Arg Ile  
 20 25 30

Val Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Ala  
 35 40 45

Glu Arg Asn Glu Ile Thr Leu Asp Lys Ile Phe Asn Gln Lys Ile Gly  
 50 55 60

Phe Leu Leu Phe Lys Asp Phe Cys Leu Asn Glu Ile Asn Glu Ala Val  
 65 70 75 80

Pro Gln Val Lys Phe Tyr Glu Glu Ile Lys Glu Tyr Glu Lys Leu Asp  
 85 90 95

Asn Glu Glu Asp Arg Leu Cys Arg Ser Arg Gln Ile Tyr Asp Ala Tyr  
 100 105 110

Ile Met Lys Glu Leu Leu Ser Cys Ser His Pro Phe Ser Lys Gln Ala  
 115 120 125

Val Glu His Val Gln Ser His Leu Ser Lys Lys Gln Val Thr Ser Thr  
 130 135 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Glu Ser Leu Arg Gly Asp  
 145 150 155 160

Ile Phe Gln Lys Phe Met Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln  
 165 170 175

Trp Lys Asn Val Glu Leu Asn Ile His Leu Thr Met Asn Glu Phe Ser  
 180 185 190

Val His Arg Ile Ile Gly Arg Gly Gly Phe Gly Glu Val Tyr Gly Cys  
 195 200 205

Arg Lys Ala Asp Thr Gly Lys Met Tyr Ala Met Lys Cys Leu Asp Lys  
 210 215 220

Lys Arg Ile Lys Met Lys Gln Gly Glu Thr Leu Ala Leu Asn Glu Arg  
 225 230 235 240

Ile Met Leu Ser Leu Val Ser Thr Gly Asp Cys Pro Phe Ile Val Cys  
 245 250 255

Met Thr Tyr Ala Phe His Thr Pro Asp Lys Leu Cys Phe Ile Leu Asp  
 260 265 270

Leu Met Asn Gly Gly Asp Leu His Tyr His Leu Ser Gln His Gly Val  
 275 280 285

Phe Ser Glu Lys Glu Met Arg Phe Tyr Ala Thr Glu Ile Ile Leu Gly  
 290 295 300

Leu Glu His Met His Asn Arg Phe Val Val Tyr Arg Asp Leu Lys Pro  
 305 310 315 320

Ala Asn Ile Leu Leu Asp Glu His Gly His Ala Arg Ile Ser Asp Leu  
 325 330 335

Gly Leu Ala Cys Asp Phe Ser Lys Lys Lys Pro His Ala Ser Val Gly  
 340 345 350

Thr His Gly Tyr Met Ala Pro Glu Val Leu Gln Lys Gly Thr Ala Tyr  
 355 360 365

Asp Ser Ser Ala Asp Trp Phe Ser Leu Gly Cys Met Leu Phe Lys Leu  
 370 375 380

Leu Arg Gly His Ser Pro Phe Arg Gln His Lys Thr Lys Asp Lys His  
 385 390 395 400

Glu Ile Asp Arg Met Thr Leu Thr Val Asn Val Glu Leu Pro Asp Thr  
 405 410 415

Phe Ser Pro Glu Leu Lys Ser Leu Leu Glu Gly Leu Leu Gln Arg Asp  
 420 425 430

Val Ser Lys Arg Leu Gly Cys His Gly Gly Gly Ser Gln Glu Val Lys  
 435 440 445

Glu His Ser Phe Phe Lys Gly Val Asp Trp Gln His Val Tyr Leu Gln  
 450 455 460

Lys Tyr Pro Pro Pro Leu Ile Pro Pro Arg Gly Glu Val Asn Ala Ala  
465 470 475 480

Asp Ala Phe Asp Ile Gly Ser Phe Asp Glu Glu Asp Thr Lys Gly Ile  
485 490 495

Lys Leu Leu Asp Cys Asp Gln Glu Leu Tyr Lys Asn Phe Pro Leu Val  
500 505 510

Ile Ser Glu Arg Trp Gln Gln Glu Val Thr Glu Thr Val Tyr Glu Ala  
515 520 525

Val Asn Ala Asp Thr Asp Lys Ile Glu Ala Arg Lys Arg Ala Lys Asn  
530 535 540

Lys Gln Leu Gly His Glu Glu Asp Tyr Ala Leu Gly Lys Asp Cys Ile  
545 550 555 560

Met His Gly Tyr Met Leu Lys Leu Gly Asn Pro Phe Leu Thr Gln Trp  
565 570 575

Gln Arg Arg Tyr Phe Tyr Leu Phe Pro Asn Arg Leu Glu Trp Arg Gly  
580 585 590

Glu Gly Glu Ser Arg Ser Asp Pro Glu Phe Val Gln Trp Lys Lys Glu  
595 600 605

Leu Asn Glu Thr Phe Lys Glu Ala Arg Arg Leu Leu Arg Arg Ala Pro  
610 615 620

Lys Phe Leu Asn Lys Pro Arg Ser Gly Thr Val Glu Leu Pro Lys Pro  
625 630 635 640

Ser Leu Cys His Arg Asn Ser Asn Gly Leu  
645 650

<210> 14

<211> 603

<212> PRT

<213> Homo sapiens

<400> 14

Met Lys Asp Tyr Asp Glu Leu Leu Lys Tyr Tyr Glu Leu His Glu Thr  
1 5 10 15

Ile Gly Thr Gly Gly Phe Ala Lys Val Lys Leu Ala Cys His Ile Leu  
20 25 30

Thr Gly Glu Met Val Ala Ile Lys Ile Met Asp Lys Asn Thr Leu Gly  
35 40 45

Ser Asp Leu Pro Arg Ile Lys Thr Glu Ile Glu Ala Leu Lys Asn Leu  
50 55 60

Arg His Gln His Ile Cys Gln Leu Tyr His Val Leu Glu Thr Ala Asn  
65 70 75 80

Lys Ile Phe Met Val Leu Glu Glu Asn Leu Leu Phe Asp Glu Tyr His  
85 90 95

Lys Leu Lys Leu Ile Asp Phe Gly Leu Cys Ala Lys Pro Lys Gly Asn  
100 105 110

Lys Asp Tyr His Leu Gln Thr Cys Cys Gly Ser Leu Ala Tyr Ala Ala  
115 120 125

Pro Glu Leu Ile Gln Gly Lys Ser Tyr Leu Gly Ser Glu Ala Asp Val  
130 135 140

Trp Ser Met Gly Ile Leu Leu Tyr Val Leu Met Cys Gly Phe Leu Pro  
145 150 155 160

Phe Asp Asp Asp Asn Val Met Ala Leu Tyr Lys Lys Ile Met Arg Gly  
165 170 175

Lys Tyr Asp Val Pro Lys Trp Leu Ser Pro Ser Ser Ile Leu Leu Leu  
180 185 190

Gln Gln Met Leu Gln Val Asp Pro Lys Lys Arg Ile Ser Met Lys Asn  
195 200 205

Leu Leu Asn His Pro Trp Ile Met Gln Asp Tyr Asn Tyr Pro Val Glu  
210 215 220

Trp Gln Ser Lys Asn Pro Phe Ile His Leu Asp Asp Asp Cys Val Thr  
225 230 235 240



Glu Leu Ser Val His His Arg Asn Asn Arg Gln Thr Met Glu Asp Leu  
245 250 255

Ile Ser Leu Trp Gln Tyr Asp His Leu Thr Ala Thr Tyr Leu Leu Leu  
260 265 270

Leu Ala Lys Lys Ala Arg Gly Lys Pro Val Arg Leu Arg Leu Ser Ser  
275 280 285

Phe Ser Cys Gly Gln Ala Ser Ala Thr Pro Phe Thr Asp Ile Lys Ser  
290 295 300

Asn Asn Trp Ser Leu Glu Asp Val Thr Ala Ser Asp Lys Asn Tyr Val  
305 310 315 320

Ala Gly Leu Ile Asp Tyr Asp Trp Cys Glu Asp Asp Leu Ser Thr Gly  
325 330 335

Ala Ala Thr Pro Arg Thr Ser Gln Phe Thr Lys Tyr Trp Thr Glu Ser  
340 345 350

Asn Gly Ala Glu Ser Lys Ser Leu Thr Pro Ala Leu Cys Arg Thr Pro  
355 360 365

Ala Asn Lys Leu Lys Asn Lys Glu Asn Val Tyr Thr Pro Lys Ser Ala  
370 375 380

Val Lys Asn Glu Glu Tyr Phe Met Phe Pro Glu Pro Lys Thr Pro Val  
385 390 395 400

Asn Lys Asn Gln His Lys Arg Glu Ile Leu Thr Thr Pro Asn Arg Tyr  
405 410 415

Thr Thr Pro Ser Lys Ala Arg Asn Gln Cys Leu Lys Glu Thr Pro Ile  
420 425 430

Lys Ile Pro Val Asn Ser Thr Gly Thr Asp Lys Leu Met Thr Gly Val  
435 440 445

Ile Ser Pro Glu Arg Arg Cys Arg Ser Val Glu Leu Asp Leu Asn Gln  
450 455 460

Ala His Met Glu Glu Thr Pro Lys Arg Lys Gly Ala Lys Val Phe Gly  
465 470 475 480

Ser Leu Glu Arg Gly Leu Asp Lys Val Ile Thr Val Leu Thr Arg Ser  
 485 490 495

Lys Arg Lys Gly Ser Ala Arg Asp Gly Pro Arg Arg Leu Lys Leu His  
 500 505 510

Tyr Asn Val Thr Thr Thr Arg Leu Val Asn Pro Asp Gln Leu Leu Asn  
 515 520 525

Glu Ile Met Ser Ile Leu Pro Lys Lys His Val Asp Phe Val Gln Lys  
 530 535 540

Gly Tyr Thr Leu Lys Cys Gln Thr Gln Ser Asp Phe Gly Lys Val Thr  
 545 550 555 560

Met Gln Phe Glu Leu Glu Val Cys Gln Leu Gln Lys Pro Asp Val Val  
 565 570 575

Gly Ile Arg Arg Gln Arg Leu Lys Gly Asp Ala Trp Val Tyr Lys Arg  
 580 585 590

Leu Val Glu Asp Ile Leu Ser Ser Cys Lys Val  
 595 600

<210> 15  
 <211> 750  
 <212> PRT  
 <213> Homo sapiens

<400> 15  
 Met Asp Gln Arg Glu Ile Leu Gln Lys Phe Leu Asp Glu Ala Gln Ser  
 1 5 10 15

Lys Lys Ile Thr Lys Glu Glu Phe Ala Asn Glu Phe Leu Lys Leu Lys  
 20 25 30

Arg Gln Ser Thr Lys Tyr Lys Ala Asp Lys Thr Tyr Pro Thr Thr Val  
 35 40 45

Ala Glu Lys Pro Lys Asn Ile Lys Lys Asn Arg Tyr Lys Asp Ile Leu  
 50 55 60

Pro Tyr Asp Tyr Ser Arg Val Glu Leu Ser Leu Ile Thr Ser Asp Glu  
 65 70 75 80

Asp Ser Ser Tyr Ile Asn Ala Asn Phe Ile Lys Gly Val Tyr Gly Pro  
85 90 95

Lys Ala Tyr Ile Ala Thr Gln Gly Pro Leu Ser Thr Thr Leu Leu Asp  
100 105 110

Phe Trp Arg Met Ile Trp Glu Tyr Ser Val Leu Glu Thr Arg Thr Ile  
115 120 125

Tyr Gln Phe His Tyr Glu Asn Trp Pro Asp His Asp Val Pro Ser Ser  
130 135 140

Ile Asp Pro Ile Leu Glu Leu Ile Trp Asp Val Arg Cys Tyr Gln Glu  
145 150 155 160

Asp Asp Ser Val Pro Ile Cys Ile His Cys Ser Ala Gly Cys Gly Arg  
165 170 175

Thr Gly Val Ile Cys Ala Ile Asp Tyr Thr Trp Met Leu Leu Lys Asp  
180 185 190

Gly Ile Ile Pro Glu Asn Phe Ser Val Phe Ser Leu Ile Arg Glu Met  
195 200 205

Arg Thr Gln Arg Pro Ser Leu Val Gln Thr Gln Glu Gln Tyr Glu Leu  
210 215 220

Val Tyr Asn Ala Val Leu Glu Leu Phe Lys Arg Gln Met Asp Val Ile  
225 230 235 240

Arg Asp Lys His Ser Gly Thr Glu Ser Gln Ala Lys His Cys Ile Pro  
245 250 255

Glu Lys Asn His Thr Leu Gln Ala Asp Ser Tyr Ser Pro Asn Leu Pro  
260 265 270

Lys Ser Thr Thr Lys Ala Ala Lys Met Met Asn Gln Gln Arg Thr Lys  
275 280 285

Met Glu Ile Lys Glu Ser Ser Ser Phe Asp Phe Arg Thr Ser Glu Ile  
290 295 300

Ser Ala Lys Glu Glu Leu Val Leu His Pro Ala Lys Ser Ser Thr Ser  
 305 310 315 320

Phe Asp Phe Leu Glu Leu Asn Tyr Ser Phe Asp Lys Asn Ala Asp Thr  
 325 330 335

Thr Met Lys Trp Gln Thr Lys Ala Phe Pro Ile Val Gly Glu Pro Leu  
 340 345 350

Gln Lys His Gln Ser Leu Asp Leu Gly Ser Leu Leu Phe Glu Gly Cys  
 355 360 365

Ser Asn Ser Lys Pro Val Asn Ala Ala Gly Arg Tyr Phe Asn Ser Lys  
 370 375 380

Val Pro Ile Thr Arg Thr Lys Ser Thr Pro Phe Glu Leu Ile Gln Gln  
 385 390 395 400

Arg Glu Thr Lys Glu Val Asp Ser Lys Glu Asn Phe Ser Tyr Leu Glu  
 405 410 415

Ser Gln Pro His Asp Ser Cys Phe Val Glu Met Gln Ala Gln Lys Val  
 420 425 430

Met His Val Ser Ser Ala Glu Leu Asn Tyr Ser Leu Pro Tyr Asp Ser  
 435 440 445

Lys His Gln Ile Arg Asn Ala Ser Asn Val Lys His His Asp Ser Ser  
 450 455 460

Ala Leu Gly Val Tyr Ser Tyr Ile Pro Leu Val Glu Asn Pro Tyr Phe  
 465 470 475 480

Ser Ser Trp Pro Pro Ser Gly Thr Ser Ser Lys Met Ser Leu Asp Leu  
 485 490 495

Pro Glu Lys Arg Asp Gly Thr Val Phe Pro Ser Ser Leu Leu Pro Thr  
 500 505 510

Ser Ser Thr Ser Leu Phe Ser Tyr Tyr Asn Ser His Asp Ser Leu Ser  
 515 520 525

Leu Asn Ser Pro Thr Asn Ile Ser Ser Leu Leu Asn Gln Glu Ser Ala  
 530 535 540

Val Leu Ala Thr Ala Pro Arg Ile Asp Asp Glu Ile Pro Pro Pro Leu  
545 550 555 560

Pro Val Arg Thr Pro Glu Ser Phe Ile Val Val Glu Glu Ala Gly Glu  
565 570 575

Phe Ser Pro Asn Val Pro Asn Pro Leu Ser Ser Ala Val Lys Val Lys  
580 585 590

Ile Gly Thr Ser Leu Glu Trp Gly Gly Thr Ser Glu Pro Lys Lys Phe  
595 600 605

Asp Asp Ser Val Ile Leu Arg Pro Ser Lys Ser Val Lys Leu Arg Ser  
610 615 620

Pro Lys Ser Glu Leu His Gln Asp Arg Ser Ser Pro Pro Pro Pro Leu  
625 630 635 640

Pro Glu Arg Thr Leu Glu Ser Phe Phe Leu Ala Asp Glu Asp Cys Met  
645 650 655

Gln Ala Gln Ser Ile Glu Thr Tyr Ser Thr Ser Tyr Pro Asp Thr Met  
660 665 670

Glu Asn Ser Thr Ser Ser Lys Gln Thr Leu Lys Thr Pro Gly Lys Ser  
675 680 685

Phe Thr Arg Ser Lys Ser Leu Lys Ile Leu Arg Asn Met Lys Lys Ser  
690 695 700

Ile Cys Asn Ser Cys Pro Pro Asn Lys Pro Ala Glu Ser Val Gln Ser  
705 710 715 720

Asn Asn Ser Ser Ser Phe Leu Asn Phe Gly Phe Ala Asn Arg Phe Ser  
725 730 735

Lys Pro Glu Gly Pro Arg Asn Pro Pro Pro Thr Trp Asn Ile  
740 745 750

<210> 16

<211> 206

<212> PRT

<213> Homo sapiens

&lt;400&gt; 16

Met Thr Ser Arg Phe Arg Leu Pro Ala Gly Arg Thr Tyr Asn Val Arg  
 1 5 10 15

Ala Ser Glu Leu Ala Arg Asp Arg Gln His Thr Glu Val Val Cys Asn  
 20 25 30

Ile Leu Leu Leu Asp Asn Thr Val Gln Ala Phe Lys Val Asn Lys His  
 35 40 45

Asp Gln Gly Gln Val Leu Leu Asp Val Val Phe Lys His Leu Asp Leu  
 50 55 60

Thr Glu Gln Asp Tyr Phe Gly Leu Gln Leu Ala Asp Asp Ser Thr Asp  
 65 70 75 80

Asn Pro Arg Trp Leu Asp Pro Asn Lys Pro Ile Arg Lys Gln Leu Lys  
 85 90 95

Arg Gly Ser Pro Tyr Ser Leu Asn Phe Arg Val Lys Phe Phe Val Ser  
 100 105 110

Asp Pro Asn Lys Leu Gln Glu Glu Tyr Thr Arg Gly Leu Ser Pro Ala  
 115 120 125

Glu Ala Glu Phe Asn Tyr Leu Asn Thr Ala Arg Thr Leu Glu Leu Tyr  
 130 135 140

Gly Val Glu Phe His Tyr Ala Arg Asp Gln Ser Asn Asn Glu Ile Met  
 145 150 155 160

Ile Gly Val Met Ser Gly Gly Ile Leu Ile Tyr Lys Asn Arg Val Arg  
 165 170 175

Met Asn Thr Phe Pro Trp Leu Lys Ile Val Lys Ile Ser Phe Lys Cys  
 180 185 190

Lys Gln Phe Phe Ile Gln Leu Arg Lys Glu Leu Ile Pro Lys  
 195 200 205

&lt;210&gt; 17

&lt;211&gt; 733

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 17

Met Met Lys Arg Arg Arg Glu Arg Leu Gly Ala Pro Cys Leu Arg Ile  
 1 5 10 15

Gln Ile Ser Thr Leu Cys Arg Gly Ala Glu Val Asn Gln His Met Phe  
 20 25 30

Ser Pro Thr Ser Ala Pro Ala Leu Phe Leu Thr Lys Val Pro Phe Ser  
 35 40 45

Ala Asp Cys Ala Leu Ala Thr Ser Pro Leu Ala Ile Phe Leu Asn Leu  
 50 55 60

Arg Ala His Ser Ser Pro Gly Thr Pro Cys Ser Ser Arg Pro Leu Pro  
 65 70 75 80

Trp Ser Cys Arg Thr Ser Asn Arg Lys Ser Leu Ile Val Thr Ser Ser  
 85 90 95

Thr Ser Pro Thr Leu Pro Arg Pro His Ser Pro Leu His Gly His Thr  
 100 105 110

Gly Asn Ser Pro Leu Asp Ser Pro Arg Asn Phe Ser Pro Asn Ala Pro  
 115 120 125

Ala His Phe Ser Phe Val Pro Ala Arg Arg Thr Asp Gly Arg Arg Trp  
 130 135 140

Ser Leu Ala Ser Leu Pro Ser Ser Gly Tyr Gly Thr Asn Thr Pro Ser  
 145 150 155 160

Ser Thr Val Ser Ser Ser Cys Ser Ser Gln Glu Lys Leu His Gln Leu  
 165 170 175

Pro Phe Gln Pro Thr Ala Asp Glu Leu His Phe Leu Thr Lys His Phe  
 180 185 190

Ser Thr Glu Ser Val Pro Asp Glu Glu Gly Arg Gln Ser Pro Ala Met  
 195 200 205

Arg Pro Arg Ser Arg Ser Leu Ser Pro Gly Arg Ser Pro Val Ser Phe  
 210 215 220

Asp Ser Glu Ile Ile Met Met Asn His Val Tyr Lys Glu Arg Phe Pro  
 225 230 235 240  
  
 Lys Ala Thr Ala Gln Met Glu Glu Arg Leu Ala Glu Phe Ile Ser Ser  
 245 250 255  
  
 Asn Thr Pro Asp Ser Val Leu Pro Leu Ala Asp Gly Ala Leu Ser Phe  
 260 265 270  
  
 Ile His His Gln Val Ile Glu Met Ala Arg Asp Cys Leu Asp Lys Ser  
 275 280 285  
  
 Arg Ser Gly Leu Ile Thr Ser Gln Tyr Phe Tyr Glu Leu Gln Glu Asn  
 290 295 300  
  
 Leu Glu Lys Leu Leu Gln Asp Ala His Glu Arg Ser Glu Ser Ser Glu  
 305 310 315 320  
  
 Val Ala Phe Val Met Gln Leu Val Lys Lys Leu Met Ile Ile Ile Ala  
 325 330 335  
  
 Arg Pro Ala Arg Leu Leu Glu Cys Leu Glu Phe Asp Pro Glu Glu Phe  
 340 345 350  
  
 Tyr His Leu Leu Glu Ala Ala Glu Gly His Ala Lys Glu Gly Gln Gly  
 355 360 365  
  
 Ile Lys Cys Asp Ile Pro Arg Tyr Ile Val Ser Gln Leu Gly Leu Thr  
 370 375 380  
  
 Arg Asp Pro Leu Glu Glu Met Ala Gln Leu Ser Ser Cys Asp Ser Pro  
 385 390 395 400  
  
 Asp Thr Pro Glu Thr Asp Asp Ser Ile Glu Gly His Gly Ala Ser Leu  
 405 410 415  
  
 Pro Ser Lys Lys Thr Pro Ser Glu Glu Asp Phe Glu Thr Ile Lys Leu  
 420 425 430  
  
 Ile Ser Asn Gly Ala Tyr Gly Ala Val Phe Leu Val Arg His Lys Ser  
 435 440 445  
  
 Thr Arg Gln Arg Phe Ala Met Lys Lys Ile Asn Lys Gln Asn Leu Ile  
 450 455 460



Leu Arg Asn Gln Ile Gln Gln Ala Phe Val Glu Arg Asp Ile Leu Thr  
465 470 475 480

Phe Ala Glu Asn Pro Phe Val Val Ser Met Phe Cys Ser Phe Asp Thr  
485 490 495

Lys Arg His Leu Cys Met Val Met Glu Tyr Val Glu Gly Gly Asp Cys  
500 505 510

Ala Thr Leu Leu Lys Asn Ile Gly Ala Leu Pro Val Asp Met Val Arg  
515 520 525

Leu Tyr Phe Ala Glu Thr Val Leu Ala Leu Glu Tyr Leu His Asn Tyr  
530 535 540

Gly Ile Val His Arg Asp Leu Lys Pro Asp Asn Leu Leu Ile Thr Ser  
545 550 555 560

Met Gly His Ile Lys Leu Thr Asp Phe Gly Leu Ser Lys Met Gly Leu  
565 570 575

Met Ser Leu Thr Thr Asn Leu Tyr Glu Gly His Ile Glu Lys Asp Ala  
580 585 590

Arg Glu Phe Leu Asp Lys Gln Val Cys Gly Thr Pro Glu Tyr Ile Ala  
595 600 605

Pro Glu Val Ile Leu Arg Gln Gly Tyr Gly Lys Pro Val Asp Trp Trp  
610 615 620

Ala Met Gly Ile Ile Leu Tyr Glu Phe Leu Val Gly Cys Val Pro Phe  
625 630 635 640

Phe Gly Asp Thr Pro Glu Glu Leu Phe Gly Gln Val Ile Ser Asp Glu  
645 650 655

Ile Val Trp Pro Glu Gly Asp Glu Ala Leu Pro Pro Asp Ala Gln Asp  
660 665 670

Leu Thr Ser Lys Leu Leu His Gln Asn Pro Leu Glu Arg Leu Gly Thr  
675 680 685

Gly Ser Ala Tyr Glu Val Lys Gln His Pro Phe Phe Thr Gly Leu Asp  
 690 695 700

Trp Thr Gly Leu Leu Arg Gln Lys Ala Glu Phe Ile Pro Gln Leu Glu  
 705 710 715 720

Ser Glu Asp Asp Thr Ser Tyr Phe Asp Thr Arg Ser Glu  
 725 730

<210> 18  
 <211> 114  
 <212> PRT  
 <213> Homo sapiens

<400> 18  
 Met Gly Asp Glu Lys Asp Ser Trp Lys Val Lys Thr Leu Asp Glu Ile  
 1 5 10 15

Leu Gln Glu Lys Lys Arg Arg Lys Glu Gln Glu Glu Lys Ala Glu Ile  
 20 25 30

Lys Arg Leu Lys Asn Ser Asp Asp Arg Asp Ser Lys Arg Asp Ser Leu  
 35 40 45

Glu Glu Gly Glu Leu Arg Asp His Cys Met Glu Ile Thr Ile Arg Asn  
 50 55 60

Ser Pro Tyr Arg Arg Glu Asp Ser Met Glu Asp Arg Gly Glu Glu Asp  
 65 70 75 80

Asp Ser Leu Ala Ile Lys Pro Pro Gln Gln Met Ser Arg Lys Glu Lys  
 85 90 95

Val His His Arg Lys Asp Glu Lys Arg Lys Glu Lys Trp Thr Ala Trp  
 100 105 110

Ser Ser

<210> 19  
 <211> 612  
 <212> PRT  
 <213> Homo sapiens

<400> 19  
 Met Lys Asp Tyr Asp Glu Leu Leu Lys Tyr Tyr Glu Leu His Glu Thr  
 1 5 10 15

Ile Gly Thr Gly Gly Phe Ala Lys Val Lys Leu Ala Cys His Ile Leu  
 20 25 30

Thr Gly Glu Met Val Ala Ile Lys Ile Met Asp Lys Asn Thr Leu Gly  
 35 40 45

Tyr Cys Pro Gly Gly Glu Leu Phe Asp Tyr Ile Ile Ser Gln Asp Arg  
 50 55 60

Leu Ser Glu Glu Glu Thr Arg Val Val Phe Arg Gln Ile Val Ser Ala  
 65 70 75 80

Val Ala Tyr Val His Ser Gln Gly Tyr Ala His Arg Asp Leu Lys Pro  
 85 90 95

Glu Asn Leu Leu Phe Asp Glu Tyr His Lys Leu Lys Leu Ile Asp Phe  
 100 105 110

Gly Leu Cys Ala Lys Pro Lys Gly Asn Lys Asp Tyr His Leu Gln Thr  
 115 120 125

Cys Cys Gly Ser Leu Ala Tyr Ala Ala Pro Glu Leu Ile Gln Gly Lys  
 130 135 140

Ser Tyr Leu Gly Ser Glu Ala Asp Val Trp Ser Met Gly Ile Leu Leu  
 145 150 155 160

Tyr Val Leu Met Cys Gly Phe Leu Pro Phe Asp Asp Asp Asn Val Met  
 165 170 175

Ala Leu Tyr Lys Lys Ile Met Arg Gly Lys Tyr Asp Val Pro Lys Trp  
 180 185 190

Leu Ser Pro Ser Ser Ile Leu Leu Leu Gln Gln Met Leu Gln Val Asp  
 195 200 205

Pro Lys Lys Arg Ile Ser Met Lys Asn Leu Leu Asn His Pro Trp Ile  
 210 215 220

Met Gln Asp Tyr Asn Tyr Pro Val Glu Trp Gln Ser Lys Asn Pro Phe  
 225 230 235 240

Ile His Leu Asp Asp Asp Cys Val Thr Glu Leu Ser Val His His Arg  
245 250 255

Asn Asn Arg Gln Thr Met Glu Asp Leu Ile Ser Leu Trp Gln Tyr Asp  
260 265 270

His Leu Thr Ala Thr Tyr Leu Leu Leu Leu Ala Lys Lys Ala Arg Gly  
275 280 285

Lys Pro Val Arg Leu Arg Leu Ser Ser Phe Ser Cys Gly Gln Ala Ser  
290 295 300

Ala Thr Pro Phe Thr Asp Ile Lys Ser Asn Asn Trp Ser Leu Glu Asp  
305 310 315 320

Val Thr Ala Ser Asp Lys Asn Tyr Val Ala Gly Leu Ile Asp Tyr Asp  
325 330 335

Trp Cys Glu Asp Asp Leu Ser Thr Gly Ala Ala Thr Pro Arg Thr Ser  
340 345 350

Gln Phe Thr Lys Tyr Trp Thr Glu Ser Asn Gly Val Glu Ser Lys Ser  
355 360 365

Leu Thr Pro Ala Leu Cys Arg Thr Pro Ala Asn Lys Leu Lys Asn Lys  
370 375 380

Glu Asn Val Tyr Thr Pro Lys Ser Ala Val Lys Asn Glu Glu Tyr Phe  
385 390 395 400

Met Phe Pro Glu Pro Lys Thr Pro Val Asn Lys Asn Gln His Lys Arg  
405 410 415

Glu Ile Leu Thr Thr Pro Asn Arg Tyr Thr Thr Pro Ser Lys Ala Arg  
420 425 430

Asn Gln Cys Leu Lys Glu Thr Pro Ile Lys Ile Pro Val Asn Ser Thr  
435 440 445

Gly Thr Asp Lys Leu Met Thr Gly Val Ile Ser Pro Glu Arg Arg Cys  
450 455 460

Arg Ser Val Glu Leu Asp Leu Asn Gln Ala His Met Glu Glu Thr Pro  
465 470 475 480

Lys Arg Lys Gly Ala Lys Val Phe Gly Ser Leu Glu Arg Gly Leu Asp  
485 490 495

Lys Val Ile Thr Val Leu Thr Arg Ser Lys Arg Lys Gly Ser Ala Arg  
500 505 510

Asp Gly Pro Arg Arg Leu Lys Leu His Tyr Asn Val Thr Thr Thr Arg  
515 520 525

Leu Val Asn Pro Asp Gln Leu Leu Asn Glu Ile Met Ser Ile Leu Pro  
530 535 540

Lys Lys His Val Asp Phe Val Gln Lys Gly Tyr Thr Leu Lys Cys Gln  
545 550 555 560

Thr Gln Ser Asp Phe Gly Lys Val Thr Met Gln Phe Glu Leu Glu Val  
565 570 575

Cys Gln Leu Gln Lys Pro Asp Val Val Gly Ile Arg Arg Gln Arg Leu  
580 585 590

Lys Gly Asp Ala Trp Val Tyr Lys Arg Leu Val Glu Asp Ile Leu Ser  
595 600 605

Ser Cys Lys Val  
610

```
<210> 20
<211> 311
<212> PRT
<213> Homo sapiens
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<400> 20
Met Leu Ser Glu Val Leu Leu Val Ser Ala Pro Gly Lys Val Ile Leu
1          5          10          15
```

His Gly Glu His Ala Val Val His Gly Lys Val Ala Leu Ala Val Ser  
20 25 30

Leu Asn Leu Arg Thr Phe Leu Arg Leu Gln Pro His Ser Asn Gly Lys  
35 40 45

Val Asp Leu Ser Leu Pro Asn Ile Gly Ile Lys Arg Ala Trp Asp Val  
50 55 60

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ala | Arg | Leu | Gln | Ser | Leu | Asp | Thr | Ser | Phe | Leu | Glu | Gln | Gly | Asp | Val |  |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |  |
| Thr | Thr | Pro | Thr | Ser | Glu | Gln | Val | Glu | Lys | Leu | Lys | Glu | Val | Ala | Gly |  |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |  |
| Leu | Pro | Asp | Asp | Cys | Ala | Val | Thr | Glu | Arg | Leu | Ala | Val | Leu | Ala | Phe |  |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |  |
| Leu | Tyr | Leu | Tyr | Leu | Ser | Ile | Cys | Arg | Lys | Gln | Arg | Trp | Thr | Lys | Glu |  |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |  |
| Asp | Leu | Glu | Leu | Ile | Asn | Lys | Trp | Ala | Phe | Gln | Gly | Glu | Arg | Met | Ile |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |
| His | Gly | Asn | Pro | Ser | Gly | Val | Asp | Asn | Ala | Asp | Ser | Thr | Trp | Gly | Gly |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |
| Ala | Leu | Arg | Tyr | His | Gln | Gly | Lys | Ile | Ser | Ser | Leu | Lys | Arg | Ser | Pro |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| Ala | Leu | Gln | Ile | Leu | Leu | Thr | Asn | Ala | Lys | Val | Pro | Arg | Asn | Thr | Arg |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ala | Leu | Val | Ala | Gly | Val | Arg | Asn | Arg | Leu | Leu | Lys | Phe | Pro | Glu | Ile |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Val | Ala | Pro | Leu | Leu | Thr | Ser | Ile | Asp | Ala | Ile | Ser | Leu | Glu | Cys | Glu |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Arg | Val | Leu | Gly | Glu | Met | Gly | Glu | Ala | Pro | Ala | Pro | Glu | Gln | Tyr | Leu |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Val | Leu | Glu | Glu | Leu | Ile | Asp | Met | Asn | Gln | His | His | Leu | Asn | Ala | Leu |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Gly | Val | Gly | His | Ala | Ser | Leu | Asp | Gln | Leu | Cys | Gln | Val | Thr | Arg | Ala |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Arg | Gly | Leu | His | Ser | Lys | Leu | Thr | Gly | Ala | Gly | Gly | Gly | Gly | Cys | Gly |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |

Ile Thr Leu Leu Lys Pro Gly Ile Pro Gly Gly Trp Ser Ser Gln Lys  
 290 295 300

Trp Arg Pro Arg Ser Arg Pro  
 305 310

<210> 21  
 <211> 206  
 <212> PRT  
 <213> Homo sapiens

<400> 21  
 Met Ser Ser Pro Arg Gly Phe Arg Ala Glu Pro Val Asn Asp Tyr Glu  
 1 5 10 15

Gly Asn Asp Ser Glu Ala Glu Asp Leu Asn Phe Arg Glu Thr Leu Pro  
 20 25 30

Ser Ser Ser Gln Glu Asn Thr Pro Arg Ser Lys Val Phe Glu Asn Lys  
 35 40 45

Val Asn Ser Glu Lys Val Lys Leu Ser Leu Arg Asn Phe Pro His Asn  
 50 55 60

Asp Tyr Glu Asp Val Phe Glu Glu Pro Ser Glu Ser Gly Ser Asp Pro  
 65 70 75 80

Ser Met Trp Thr Ala Arg Gly Pro Phe Arg Arg Gly Arg Trp Ser Ser  
 85 90 95

Glu Asp Glu Glu Ala Ala Gly Pro Ser Gln Ala Leu Ser Pro Leu Leu  
 100 105 110

Ser Asp Thr Arg Lys Ile Val Ser Glu Gly Glu Leu Asp Gln Leu Ala  
 115 120 125

Gln Ile Arg Pro Leu Ile Phe Asn Phe His Glu Gln Thr Ala Ile Lys  
 130 135 140

Asp Cys Leu Lys Ile Leu Glu Glu Lys Thr Ala Ala Tyr Asp Ile Met  
 145 150 155 160

Gln Glu Phe Met Phe Asn Ile Met Asp Ile Val Ala Gln Met Arg Glu  
 165 170 175

Gln Arg Ser Gly Met Val Gln Thr Lys Glu Gln Tyr His Phe Cys Tyr  
 180 185 190

Asp Ile Val Leu Glu Val Leu Arg Lys Leu Leu Thr Leu Asp  
 195 200 205

<210> 22

<211> 1125

<212> PRT

<213> Homo sapiens

<400> 22

Met Pro Asp Gln Asp Lys Lys Val Lys Thr Thr Glu Lys Ser Thr Asp  
 1 5 10 15

Lys Gln Gln Glu Ile Thr Ile Arg Asp Tyr Ser Asp Leu Lys Arg Leu  
 20 25 30

Arg Cys Leu Leu Asn Val Gln Ser Ser Lys Gln Gln Leu Pro Ala Ile  
 35 40 45

Asn Phe Asp Ser Ala Gln Asn Ser Met Thr Lys Ser Glu Pro Ala Ile  
 50 55 60

Arg Ala Gly Gly His Arg Ala Arg Gly Gln Trp His Glu Ser Thr Glu  
 65 70 75 80

Ala Val Glu Leu Glu Asn Phe Ser Ile Asn Tyr Lys Asn Glu Arg Asn  
 85 90 95

Phe Ser Lys His Pro Gln Arg Lys Leu Phe Gln Glu Ile Phe Thr Ala  
 100 105 110

Leu Val Lys Asn Arg Leu Ile Ser Arg Glu Trp Val Asn Arg Ala Pro  
 115 120 125

Ser Ile His Phe Leu Arg Val Leu Ile Cys Leu Arg Leu Leu Met Arg  
 130 135 140

Asp Pro Cys Tyr Gln Glu Ile Leu His Ser Leu Gly Gly Ile Glu Asn  
 145 150 155 160

Leu Ala Gln Tyr Met Glu Ile Val Ala Asn Glu Tyr Leu Gly Tyr Gly  
 165 170 175



Glu Glu Gln His Thr Val Asp Lys Leu Val Asn Met Thr Tyr Ile Phe  
 180 185 190

Gln Lys Leu Ala Ala Val Lys Asp Gln Arg Glu Trp Val Thr Thr Ser  
 195 200 205

Gly Ala His Lys Thr Leu Val Asn Leu Leu Gly Ala Arg Asp Thr Asn  
 210 215 220

Val Leu Leu Gly Ser Leu Leu Ala Leu Ala Ser Leu Ala Glu Ser Gln  
 225 230 235 240

Glu Cys Arg Glu Lys Ile Ser Glu Leu Asn Ile Val Glu Asn Leu Leu  
 245 250 255

Met Ile Leu His Glu Tyr Asp Leu Leu Ser Lys Arg Leu Thr Ala Glu  
 260 265 270

Leu Leu Arg Leu Leu Cys Ala Glu Pro Gln Val Lys Glu Gln Val Lys  
 275 280 285

Leu Tyr Glu Gly Ile Pro Val Leu Leu Ser Leu Leu His Ser Asp His  
 290 295 300

Leu Lys Leu Leu Trp Ser Ile Val Trp Ile Leu Val Gln Val Cys Glu  
 305 310 315 320

Asp Pro Glu Thr Ser Val Glu Ile Arg Ile Trp Gly Gly Ile Lys Gln  
 325 330 335

Leu Leu His Ile Leu Gln Gly Asp Arg Asn Phe Val Ser Asp His Ser  
 340 345 350

Ser Ile Gly Ser Leu Ser Ser Ala Asn Ala Ala Gly Arg Ile Gln Gln  
 355 360 365

Leu His Leu Ser Glu Asp Leu Ser Pro Arg Glu Ile Gln Glu Asn Thr  
 370 375 380

Phe Ser Leu Gln Ala Ala Cys Cys Ala Ala Leu Thr Glu Leu Val Leu  
 385 390 395 400

Asn Asp Thr Asn Ala His Gln Val Val Gln Glu Asn Gly Val Tyr Thr  
 405 410 415

Ile Ala Lys Leu Ile Leu Pro Asn Lys Gln Lys Asn Ala Ala Lys Ser  
 420 425 430

Asn Leu Leu Gln Cys Tyr Ala Phe Arg Ala Leu Arg Phe Leu Phe Ser  
 435 440 445

Met Glu Arg Asn Arg Pro Leu Phe Lys Arg Leu Phe Pro Thr Asp Leu  
 450 455 460

Phe Glu Ile Phe Ile Asp Ile Gly His Tyr Val Arg Asp Ile Ser Ala  
 465 470 475 480

Tyr Glu Glu Leu Val Ser Lys Leu Asn Leu Leu Val Glu Asp Glu Leu  
 485 490 495

Lys Gln Ile Ala Glu Asn Ile Glu Ser Ile Asn Gln Asn Lys Ala Pro  
 500 505 510

Leu Lys Tyr Ile Gly Asn Tyr Ala Ile Leu Asp His Leu Gly Ser Gly  
 515 520 525

Ala Phe Gly Cys Val Tyr Lys Val Arg Lys His Ser Gly Gln Asn Leu  
 530 535 540

Leu Ala Met Lys Glu Val Asn Leu His Asn Pro Ala Phe Gly Lys Asp  
 545 550 555 560

Lys Lys Asp Arg Asp Ser Ser Val Arg Asn Ile Val Ser Glu Leu Thr  
 565 570 575

Ile Ile Lys Glu Gln Leu Tyr His Pro Asn Ile Val Arg Tyr Tyr Lys  
 580 585 590

Thr Phe Leu Glu Asn Asp Arg Leu Tyr Ile Val Met Glu Leu Ile Glu  
 595 600 605

Gly Ala Pro Leu Gly Glu His Phe Ser Ser Leu Lys Glu Lys His His  
 610 615 620

His Phe Thr Glu Glu Arg Leu Trp Lys Ile Phe Ile Gln Leu Cys Leu  
 625 630 635 640

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Arg | Tyr | Leu | His | Lys | Glu | Lys | Arg | Ile | Val | His | Arg | Asp | Leu |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Thr | Pro | Asn | Asn | Ile | Met | Leu | Gly | Asp | Lys | Asp | Lys | Val | Thr | Val | Thr |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Asp | Phe | Gly | Leu | Ala | Lys | Gln | Lys | Gln | Glu | Asn | Ser | Lys | Leu | Thr | Ser |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Val | Val | Gly | Thr | Ile | Leu | Tyr | Ser | Cys | Pro | Glu | Val | Leu | Lys | Ser | Glu |
|     | 690 |     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Tyr | Gly | Glu | Lys | Ala | Asp | Val | Trp | Ala | Val | Gly | Cys | Ile | Leu | Tyr |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gln | Met | Ala | Thr | Leu | Ser | Pro | Pro | Phe | Tyr | Ser | Thr | Asn | Met | Leu | Ser |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Ala | Thr | Lys | Ile | Val | Glu | Ala | Val | Tyr | Glu | Pro | Val | Pro | Glu | Gly |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ile | Tyr | Ser | Glu | Lys | Val | Thr | Asp | Thr | Ile | Ser | Arg | Cys | Leu | Thr | Pro |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Asp | Ala | Glu | Ala | Arg | Pro | Asp | Ile | Val | Glu | Val | Ser | Ser | Met | Ile | Ser |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Asp | Val | Met | Met | Lys | Tyr | Leu | Asp | Asn | Leu | Ser | Thr | Ser | Gln | Leu | Ser |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Glu | Lys | Lys | Leu | Glu | Arg | Glu | Arg | Arg | Arg | Thr | Gln | Arg | Tyr | Phe |
|     |     |     |     | 805 |     |     |     |     | 810 |     |     |     |     | 815 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met | Glu | Ala | Asn | Arg | Asn | Thr | Val | Thr | Cys | His | His | Glu | Leu | Ala | Val |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Ser | His | Glu | Thr | Phe | Glu | Lys | Ala | Ser | Leu | Ser | Ser | Ser | Ser | Ser |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gly | Ala | Ala | Ser | Leu | Lys | Ser | Glu | Leu | Ser | Glu | Ser | Ala | Asp | Leu | Pro |
|     | 850 |     |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Glu | Gly | Phe | Gln | Ala | Ser | Tyr | Gly | Lys | Asp | Glu | Asp | Arg | Ala | Cys |
| 865 |     |     |     |     | 870 |     |     |     |     | 875 |     |     |     |     | 880 |

Asp Glu Ile Leu Ser Asp Asp Asn Phe Asn Leu Glu Asn Ala Glu Lys  
885 890 895

Asp Thr Tyr Ser Glu Val Asp Asp Glu Leu Asp Ile Ser Asp Asn Ser  
900 905 910

Ser Ser Ser Ser Ser Ser Pro Leu Lys Glu Ser Thr Phe Asn Ile Leu  
915 920 925

Lys Arg Ser Phe Ser Ala Ser Gly Gly Glu Arg Gln Ser Gln Thr Arg  
930 935 940

Asp Phe Thr Gly Gly Thr Gly Ser Arg Pro Arg Pro Gly Pro Gln Met  
945 950 955 960

Gly Thr Phe Leu Trp Gln Ala Ser Ala Gly Ile Ala Val Ser Gln Arg  
965 970 975

Lys Val Arg Gln Ile Ser Asp Pro Ile Gln Gln Ile Leu Ile Gln Leu  
980 985 990

His Lys Ile Ile Tyr Ile Thr Gln Leu Pro Pro Ala Leu His His Asn  
995 1000 1005

Leu Lys Arg Arg Val Ile Glu Arg Phe Lys Lys Ser Leu Phe Ser  
1010 1015 1020

Gln Gln Ser Asn Pro Cys Asn Leu Lys Ser Glu Ile Lys Lys Leu  
1025 1030 1035

Ser Gln Gly Ser Pro Glu Pro Ile Glu Pro Asn Phe Phe Thr Ala  
1040 1045 1050

Asp Tyr His Leu Leu His Arg Ser Ser Gly Gly Asn Ser Leu Ser  
1055 1060 1065

Pro Asn Asp Pro Thr Gly Leu Pro Thr Ser Ile Glu Leu Glu Glu  
1070 1075 1080

Gly Ile Thr Tyr Glu Gln Met Gln Thr Val Ile Glu Glu Val Leu  
1085 1090 1095

Glu Glu Ser Gly Tyr Tyr Asn Phe Thr Ser Asn Arg Tyr His Ser  
 1100 1105 1110

Tyr Pro Trp Gly Thr Lys Asn His Pro Thr Lys Arg  
 1115 1120 1125

<210> 23

<211> 888

<212> PRT

<213> Homo sapiens

<400> 23

Met Gln Ile Val Gly Ser Pro Gly Pro Gly Ala Ala Trp Pro Val Lys  
 1 5 10 15

Arg Val Val Phe Pro Asn Gly Glu Gln Phe Leu Leu Ser Val Ala Thr  
 20 25 30

Lys Lys Val Ile Cys Leu Cys Leu Gly Lys Ala Gly Arg Lys Val Leu  
 35 40 45

Ala Lys Lys Leu Ser Pro Leu Glu Thr Met Asp Lys Tyr Asp Val Ile  
 50 55 60

Lys Ala Ile Gly Gln Gly Ala Phe Gly Lys Ala Tyr Leu Ala Lys Gly  
 65 70 75 80

Lys Ser Asp Ser Lys His Cys Val Ile Lys Glu Ile Asn Phe Glu Lys  
 85 90 95

Met Pro Ile Gln Glu Lys Glu Ala Ser Lys Lys Glu Val Ile Leu Leu  
 100 105 110

Glu Lys Met Lys His Pro Asn Ile Val Ala Phe Phe Asn Ser Phe Gln  
 115 120 125

Glu Asn Gly Arg Leu Phe Ile Val Met Glu Tyr Cys Asp Gly Gly Asp  
 130 135 140

Leu Met Lys Arg Ile Asn Arg Gln Arg Gly Val Leu Phe Ser Glu Asp  
 145 150 155 160

Gln Ile Leu Gly Trp Phe Val Gln Ile Ser Leu Gly Leu Lys His Ile  
 165 170 175

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Asp | Arg | Lys | Ile | Leu | His | Arg | Asp | Ile | Lys | Ala | Gln | Asn | Ile | Phe |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Ser | Lys | Asn | Gly | Met | Val | Ala | Lys | Leu | Gly | Asp | Phe | Gly | Ile | Ala |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Val | Leu | Asn | Asn | Ser | Met | Glu | Leu | Ala | Arg | Thr | Cys | Ile | Gly | Thr |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Tyr | Tyr | Leu | Ser | Pro | Glu | Ile | Cys | Gln | Asn | Lys | Pro | Tyr | Asn | Asn |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lys | Thr | Asp | Ile | Trp | Ser | Leu | Gly | Cys | Val | Leu | Tyr | Glu | Leu | Cys | Thr |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Lys | His | Pro | Phe | Glu | Gly | Asn | Asn | Leu | Gln | Gln | Leu | Val | Leu | Lys |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ile | Cys | Gln | Ala | His | Phe | Ala | Pro | Ile | Ser | Pro | Gly | Phe | Ser | Arg | Glu |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | His | Ser | Leu | Ile | Ser | Gln | Leu | Phe | Gln | Val | Ser | Pro | Arg | Asp | Arg |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Ser | Ile | Asn | Ser | Ile | Leu | Lys | Arg | Pro | Phe | Leu | Glu | Asn | Leu | Ile |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Lys | Tyr | Leu | Thr | Pro | Glu | Val | Ile | Gln | Glu | Glu | Phe | Ser | His | Met |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Ile | Cys | Arg | Ala | Gly | Ala | Pro | Ala | Ser | Arg | His | Ala | Gly | Lys | Val |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Val | Gln | Lys | Cys | Lys | Ile | Gln | Lys | Val | Arg | Phe | Gln | Gly | Lys | Cys | Pro |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Pro | Arg | Ser | Arg | Ile | Ser | Val | Pro | Ile | Lys | Arg | Asn | Ala | Ile | Leu | His |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Asn | Glu | Trp | Arg | Pro | Pro | Ala | Gly | Ala | Gln | Lys | Ala | Arg | Ser | Ile |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Lys | Met | Ile | Glu | Arg | Pro | Lys | Ile | Ala | Ala | Val | Cys | Gly | His | Tyr | Asp |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |

Tyr Tyr Tyr Ala Gln Leu Asp Met Leu Arg Arg Arg Ala His Lys Pro  
 420 425 430

Ser Tyr His Pro Ile Pro Gln Glu Asn Thr Gly Val Glu Asp Tyr Gly  
 435 440 445

Gln Glu Thr Arg His Gly Pro Ser Pro Ser Gln Trp Pro Ala Glu Tyr  
 450 455 460

Leu Gln Arg Lys Phe Glu Ala Gln Gln Tyr Lys Leu Lys Val Glu Lys  
 465 470 475 480

Gln Leu Gly Leu Arg Pro Ser Ser Ala Glu Pro Asn Tyr Asn Gln Arg  
 485 490 495

Gln Glu Leu Arg Ser Asn Gly Glu Glu Pro Arg Phe Gln Glu Leu Pro  
 500 505 510

Phe Arg Lys Asn Glu Met Lys Glu Gln Glu Tyr Trp Lys Gln Leu Glu  
 515 520 525

Glu Ile Arg Gln Gln Tyr His Asn Asp Met Lys Glu Ile Arg Lys Lys  
 530 535 540

Met Gly Arg Glu Pro Glu Glu Asn Ser Lys Ile Ser His Lys Thr Tyr  
 545 550 555 560

Leu Val Lys Lys Ser Asn Leu Pro Val His Gln Asp Ala Ser Glu Gly  
 565 570 575

Glu Ala Pro Val Gln Asp Ile Glu Lys Asp Leu Lys Gln Met Arg Leu  
 580 585 590

Gln Asn Thr Lys Glu Ser Lys Asn Pro Glu Gln Lys Tyr Lys Ala Lys  
 595 600 605

Gly Val Lys Phe Glu Ile Asn Leu Asp Lys Cys Ile Ser Asp Glu Asn  
 610 615 620

Ile Leu Gln Glu Glu Glu Ala Met Asp Ile Pro Asn Glu Thr Leu Thr  
 625 630 635 640

Phe Glu Asp Gly Met Lys Phe Lys Glu Tyr Glu Cys Val Lys Glu His  
645 650 655

Gly Asp Tyr Thr Asp Lys Ala Phe Glu Lys Leu His Cys Pro Glu Ala  
660 665 670

Gly Phe Ser Thr Gln Thr Val Ala Ala Val Gly Asn Arg Arg Gln Trp  
675 680 685

Asp Gly Gly Ala Pro Gln Thr Leu Leu Gln Met Met Ala Val Ala Asp  
690 695 700

Ile Thr Ser Thr Cys Pro Thr Gly Pro Asp Asn Gly Gln Val Ile Val  
705 710 715 720

Ile Glu Gly Ile Pro Gly Asn Arg Lys Gln Trp Arg His Glu Ala Pro  
725 730 735

Gly Thr Leu Met Ser Val Leu Ala Ala Ala His Leu Thr Ser Ser Ser  
740 745 750

Phe Ser Ala Asp Glu Glu Phe Ala Met Gly Thr Leu Lys Gln Trp Leu  
755 760 765

Pro Lys Glu Glu Asp Glu Gly Lys Val Glu Met Val Ser Gly Ile Glu  
770 775 780

Val Asp Glu Glu Gln Leu Glu Pro Arg Ser Asp Asp Asp Asp Thr Asn  
785 790 795 800

Phe Glu Glu Ser Glu Asp Glu Leu Arg Asp Glu Val Val Glu Tyr Leu  
805 810 815

Glu Lys Leu Ala Thr Phe Lys Gly Glu Glu Lys Thr Glu Glu Ala Ser  
820 825 830

Ser Thr Ser Lys Asp Ser Arg Lys Ser Arg Glu Arg Glu Gly Ile Ser  
835 840 845

Met Gln Lys Ser Glu Glu Leu Arg Glu Gly Leu Glu Asn Ile Ser Thr  
850 855 860

Thr Ser Asn Asp His Ile Cys Ile Thr Asp Glu Asp Gln Gly Thr Ser  
865 870 875 880



Thr Thr Ser Gln Asn Ile Gln Val  
885

<210> 24

<211> 487

<212> PRT

<213> Homo sapiens

<400> 24

Met Gly Arg Ile Gly Ile Ser Cys Leu Phe Pro Ala Ser Trp His Phe  
1 5 10 15

Ser Ile Ser Pro Val Gly Cys Pro Arg Ile Leu Asn Thr Asn Leu Arg  
20 25 30

Gln Ile Met Val Ile Ser Val Leu Ala Ala Ala Val Ser Leu Leu Tyr  
35 40 45

Phe Ser Val Val Ile Ile Arg Asn Lys Tyr Gly Arg Leu Thr Arg Asp  
50 55 60

Lys Lys Phe Gln Arg Tyr Leu Ala Arg Val Thr Asp Ile Glu Ala Thr  
65 70 75 80

Asp Thr Asn Asn Pro Asn Val Asn Tyr Gly Ile Val Val Asp Cys Gly  
85 90 95

Ser Ser Gly Ser Arg Val Phe Val Tyr Cys Trp Pro Arg His Asn Gly  
100 105 110

Asn Pro His Asp Leu Leu Asp Ile Arg Gln Met Arg Asp Lys Asn Arg  
115 120 125

Lys Pro Val Val Met Lys Ile Lys Pro Gly Ile Ser Glu Phe Ala Thr  
130 135 140

Ser Pro Glu Lys Val Ser Asp Tyr Ile Ser Pro Leu Leu Asn Phe Ala  
145 150 155 160

Ala Glu His Val Pro Arg Ala Lys His Lys Glu Thr Pro Leu Tyr Ile  
165 170 175

Leu Cys Thr Ala Gly Met Arg Ile Leu Pro Glu Ser Gln Gln Lys Ala  
180 185 190

Ile Leu Glu Asp Leu Leu Thr Asp Ile Pro Val His Phe Asp Phe Leu  
 195 200 205

Phe Ser Asp Ser His Ala Glu Val Ile Ser Gly Lys Gln Glu Gly Val  
 210 215 220

Tyr Ala Trp Ile Gly Ile Asn Phe Val Leu Gly Arg Phe Glu His Ile  
 225 230 235 240

Glu Asp Asp Asp Glu Ala Val Val Glu Val Asn Ile Pro Gly Ser Val  
 245 250 255

Ser Ser Glu Ala Ile Val Arg Lys Arg Thr Ala Gly Ile Leu Asp Met  
 260 265 270

Gly Gly Val Leu Thr Gln Ile Ala Tyr Glu Val Pro Lys Thr Ala Ser  
 275 280 285

Phe Ala Ser Ser Gln Gln Glu Glu Val Ala Lys Asn Leu Leu Ala Glu  
 290 295 300

Phe Asn Leu Gly Cys Asp Val His Gln Thr Glu His Val Tyr Arg Val  
 305 310 315 320

Tyr Val Ala Thr Phe Phe Gly Phe Gly Gly Asn Ala Ala Arg Gln Arg  
 325 330 335

Tyr Glu Asp Arg Ile Phe Ala Asn Thr Ile Gln Lys Asn Arg Leu Leu  
 340 345 350

Gly Lys Gln Thr Gly Leu Thr Pro Asp Met Pro Tyr Leu Asp Pro Cys  
 355 360 365

Leu Pro Leu Asp Ile Lys Asp Glu Ile Gln Gln Asn Gly Gln Thr Ile  
 370 375 380

Tyr Leu Arg Gly Thr Gly Asp Phe Asp Leu Cys Arg Glu Thr Ile Gln  
 385 390 395 400

Pro Phe Met Asn Lys Thr Asn Glu Thr Gln Thr Ser Leu Asn Gly Val  
 405 410 415

Tyr Gln Pro Pro Ile His Phe Gln Asn Ser Glu Phe Tyr Gly Phe Ser  
                   420                                  425                                  430

Glu Phe Tyr Tyr Cys Thr Glu Asp Val Leu Arg Met Gly Gly Asp Tyr  
                   435                                  440                                  445

Asn Ala Ala Lys Phe Thr Lys Ala Ala Lys Asp Tyr Cys Ala Thr Lys  
           450                                  455                                  460

Trp Ser Ile Leu Arg Glu Arg Phe Asp Arg Gly Leu Tyr Ala Ser His  
   465                                  470                                  475                                  480

Ala Asp Leu His Arg Leu Lys  
                                   485

<210> 25  
 <211> 1309  
 <212> PRT  
 <213> Homo sapiens

<400> 25  
 Met Asp Glu Ser Ser Leu Leu Arg Arg Arg Gly Leu Gln Lys Glu Leu  
 1                                  5                                  10                                  15

Ser Leu Pro Arg Arg Gly Arg Gly Cys Arg Ser Gly Asn Arg Lys Ser  
                   20                                  25                                  30

Leu Val Val Gly Thr Pro Ser Pro Thr Leu Ser Arg Pro Leu Ser Pro  
           35                                  40                                  45

Leu Ser Val Pro Thr Ala Gly Ser Ser Pro Leu Asp Ser Pro Arg Asn  
   50                                  55                                  60

Phe Ser Ala Ala Ser Ala Leu Asn Phe Pro Phe Ala Arg Arg Ala Asp  
   65                                  70                                  75                                  80

Gly Arg Arg Trp Ser Leu Ala Ser Leu Pro Ser Ser Gly Tyr Gly Thr  
                   85                                  90                                  95

Asn Thr Pro Ser Ser Thr Leu Ser Ser Ser Ser Ser Arg Glu Arg  
                   100                                  105                                  110

Leu His Gln Leu Pro Phe Gln Pro Thr Pro Asp Glu Leu His Phe Leu  
           115                                  120                                  125

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | Lys | His | Phe | Arg | Ser | Ser | Glu | Asn | Val | Leu | Asp | Glu | Glu | Gly | Gly |  |  |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg | Ser | Pro | Arg | Leu | Arg | Pro | Arg | Ser | Arg | Ser | Leu | Ser | Pro | Gly | Arg |  |  |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ala | Thr | Gly | Thr | Phe | Asp | Asn | Glu | Ile | Val | Met | Met | Asn | His | Val | Tyr |  |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg | Glu | Arg | Phe | Pro | Lys | Ala | Thr | Ala | Gln | Met | Glu | Gly | Arg | Leu | Gln |  |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Phe | Leu | Thr | Ala | Tyr | Ala | Pro | Gly | Ala | Arg | Leu | Ala | Leu | Ala | Asp |  |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gly | Val | Leu | Gly | Phe | Ile | His | His | Gln | Ile | Val | Glu | Leu | Ala | Arg | Asp |  |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Cys | Leu | Ala | Lys | Ser | Gly | Glu | Asn | Leu | Val | Thr | Ser | Arg | Tyr | Phe | Leu |  |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Glu | Met | Gln | Glu | Lys | Leu | Glu | Arg | Leu | Leu | Gln | Asp | Ala | His | Glu | Arg |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ser | Asp | Ser | Glu | Glu | Val | Ser | Phe | Ile | Val | Gln | Leu | Val | Arg | Lys | Leu |  |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Leu | Ile | Ile | Ile | Ser | Arg | Pro | Ala | Arg | Leu | Leu | Glu | Cys | Leu | Glu | Phe |  |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Asp | Pro | Glu | Glu | Phe | Tyr | His | Leu | Leu | Glu | Ala | Ala | Glu | Gly | His | Ala |  |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Arg | Glu | Gly | Gln | Gly | Ile | Lys | Thr | Asp | Leu | Pro | Gln | Tyr | Ile | Ile | Gly |  |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Gln | Leu | Gly | Leu | Ala | Lys | Asp | Pro | Leu | Glu | Glu | Met | Val | Pro | Leu | Ser |  |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| His | Leu | Glu | Glu | Glu | Gln | Pro | Pro | Ala | Pro | Glu | Ser | Pro | Glu | Ser | Arg |  |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Ala | Leu | Val | Gly | Gln | Ser | Arg | Arg | Lys | Pro | Cys | Glu | Ser | Asp | Phe | Glu |  |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |  |  |

Thr Ile Lys Leu Ile Ser Asn Gly Ala Tyr Gly Ala Val Tyr Leu Val  
 370 375 380

Arg His Arg Asp Thr Arg Gln Arg Phe Ala Ile Lys Lys Ile Asn Lys  
 385 390 395 400

Gln Asn Leu Ile Leu Arg Asn Gln Val Gln Gln Val Phe Val Glu Arg  
 405 410 415

Asp Ile Leu Thr Phe Ala Glu Asn Pro Phe Val Val Ser Met Phe Cys  
 420 425 430

Ser Phe Glu Thr Arg Arg His Leu Cys Met Val Met Glu Tyr Val Glu  
 435 440 445

Gly Gly Asp Cys Ala Thr Leu Leu Lys Asn Met Gly Pro Leu Pro Val  
 450 455 460

Asp Met Ala Arg Leu Tyr Phe Ala Glu Thr Val Leu Ala Leu Glu Tyr  
 465 470 475 480

Leu His Asn Tyr Gly Ile Val His Arg Asp Leu Lys Pro Asp Asn Leu  
 485 490 495

Leu Ile Thr Ser Leu Gly His Ile Lys Leu Thr Asp Phe Gly Leu Ser  
 500 505 510

Lys Ile Gly Leu Met Ser Met Ala Thr Asn Leu Tyr Glu Gly His Ile  
 515 520 525

Glu Lys Asp Ala Arg Glu Phe Ile Asp Lys Gln Val Cys Gly Thr Pro  
 530 535 540

Glu Tyr Ile Ala Pro Glu Val Ile Phe Arg Gln Gly Tyr Gly Lys Pro  
 545 550 555 560

Val Asp Trp Trp Ala Met Gly Val Val Leu Tyr Glu Phe Leu Val Gly  
 565 570 575

Cys Val Pro Phe Phe Gly Asp Thr Pro Glu Glu Leu Phe Gly Gln Val  
 580 585 590

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Asp | Glu | Ile | Met | Trp | Pro | Glu | Gly | Asp | Glu | Ala | Leu | Pro | Ala |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |

Asp Ala Gln Asp Leu Ile Thr Arg Leu Leu Arg Gln Ser Pro Leu Asp  
610 615 620

Arg Leu Gly Thr Gly Gly Thr His Glu Val Lys Gln His Pro Phe Phe  
625 630 635 640

Leu Ala Leu Asp Trp Ala Gly Leu Leu Arg His Lys Ala Glu Phe Val  
645 650 655

Pro Gln Leu Glu Ala Glu Asp Asp Thr Ser Tyr Phe Asp Thr Arg Ser  
660 665 670

Glu Arg Tyr Arg His Leu Gly Ser Glu Asp Asp Glu Thr Asn Asp Glu  
675 680 685

Glu Ser Ser Thr Glu Ile Pro Gln Phe Ser Ser Cys Ser His Arg Phe  
690 695 700

Ser Lys Val Tyr Ser Ser Ser Glu Phe Leu Ala Val Gln Pro Thr Pro  
705 710 715 720

Thr Phe Ala Glu Arg Ser Phe Ser Glu Asp Arg Glu Glu Gly Trp Glu  
725 730 735

Arg Ser Glu Val Asp Tyr Gly Arg Arg Leu Ser Ala Asp Ile Arg Leu  
740 745 750

Arg Ser Trp Thr Ser Ser Gly Ser Ser Cys Gln Ser Ser Ser Ser Gln  
755 760 765

Pro Glu Arg Gly Pro Ser Pro Ser Leu Leu Asn Thr Ile Ser Leu Asp  
770 775 780

Thr Met Pro Lys Phe Ala Phe Ser Ser Glu Asp Glu Gly Val Gly Pro  
785 790 795 800

Gly Pro Ala Gly Pro Lys Arg Pro Val Phe Ile Leu Gly Glu Pro Asp  
805 810 815

Pro Pro Pro Ala Ala Thr Pro Val Met Pro Lys Pro Ser Ser Leu Ser  
820 825 830

Ala Asp Thr Ala Ala Leu Ser His Ala Arg Leu Arg Ser Asn Ser Ile  
835 840 845

Gly Ala Arg His Ser Thr Pro Arg Pro Leu Asp Ala Gly Arg Gly Arg  
850 855 860

Arg Leu Gly Gly Pro Arg Asp Pro Ala Pro Glu Lys Ser Arg Ala Ser  
865 870 875 880

Ser Ser Gly Gly Ser Gly Gly Gly Ser Gly Gly Arg Val Pro Lys Ser  
885 890 895

Ala Ser Val Ser Ala Leu Ser Leu Ile Ile Thr Ala Asp Asp Gly Ser  
900 905 910

Gly Gly Pro Leu Met Ser Pro Leu Ser Pro Arg Ser Leu Ser Ser Asn  
915 920 925

Pro Ser Ser Arg Asp Ser Ser Pro Ser Arg Asp Pro Ser Pro Val Cys  
930 935 940

Gly Ser Leu Arg Pro Pro Ile Val Ile His Ser Ser Gly Lys Lys Tyr  
945 950 955 960

Gly Phe Ser Leu Arg Ala Ile Arg Val Tyr Met Gly Asp Ser Asp Val  
965 970 975

Tyr Thr Val His His Val Val Trp Ser Val Glu Asp Gly Ser Pro Ala  
980 985 990

Gln Glu Ala Gly Leu Arg Ala Gly Asp Leu Ile Thr His Ile Asn Gly  
995 1000 1005

Glu Ser Val Leu Gly Leu Val His Met Asp Val Val Glu Leu Leu  
1010 1015 1020

Leu Lys Ser Gly Asn Lys Ile Ser Leu Arg Thr Thr Ala Leu Glu  
1025 1030 1035

Asn Thr Ser Ile Lys Val Gly Pro Ala Arg Lys Asn Val Ala Lys  
1040 1045 1050

|      |     |     |     |     |     |      |     |     |     |     |      |     |     |     |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Gly  | Arg | Met | Ala | Arg | Arg | Ser  | Lys | Arg | Ser | Arg | Arg  | Arg | Glu | Thr |
| 1055 |     |     |     |     |     | 1060 |     |     |     |     | 1065 |     |     |     |
| Gln  | Asp | Arg | Arg | Lys | Ser | Leu  | Phe | Lys | Lys | Ile | Ser  | Lys | Gln | Thr |
| 1070 |     |     |     |     |     | 1075 |     |     |     |     | 1080 |     |     |     |
| Ser  | Val | Leu | His | Thr | Ser | Arg  | Ser | Phe | Ser | Ser | Gly  | Leu | His | His |
| 1085 |     |     |     |     |     | 1090 |     |     |     |     | 1095 |     |     |     |
| Ser  | Leu | Ser | Ser | Ser | Glu | Ser  | Leu | Pro | Gly | Ser | Pro  | Thr | His | Ser |
| 1100 |     |     |     |     |     | 1105 |     |     |     |     | 1110 |     |     |     |
| Leu  | Ser | Pro | Ser | Pro | Thr | Thr  | Pro | Cys | Arg | Ser | Pro  | Ala | Pro | Asp |
| 1115 |     |     |     |     |     | 1120 |     |     |     |     | 1125 |     |     |     |
| Val  | Pro | Ala | Asp | Thr | Thr | Ala  | Ser | Pro | Pro | Ser | Ala  | Ser | Pro | Ser |
| 1130 |     |     |     |     |     | 1135 |     |     |     |     | 1140 |     |     |     |
| Ser  | Ser | Ser | Pro | Ala | Ser | Pro  | Ala | Ala | Ala | Gly | His  | Thr | Arg | Pro |
| 1145 |     |     |     |     |     | 1150 |     |     |     |     | 1155 |     |     |     |
| Ser  | Ser | Leu | His | Gly | Leu | Ala  | Ala | Lys | Leu | Gly | Pro  | Pro | Arg | Pro |
| 1160 |     |     |     |     |     | 1165 |     |     |     |     | 1170 |     |     |     |
| Lys  | Thr | Gly | Arg | Arg | Lys | Ser  | Thr | Ser | Ser | Ile | Pro  | Pro | Ser | Pro |
| 1175 |     |     |     |     |     | 1180 |     |     |     |     | 1185 |     |     |     |
| Leu  | Ala | Cys | Pro | Pro | Ile | Ser  | Ala | Pro | Pro | Pro | Arg  | Ser | Pro | Ser |
| 1190 |     |     |     |     |     | 1195 |     |     |     |     | 1200 |     |     |     |
| Pro  | Leu | Pro | Gly | His | Pro | Pro  | Ala | Pro | Ala | Arg | Ser  | Pro | Arg | Leu |
| 1205 |     |     |     |     |     | 1210 |     |     |     |     | 1215 |     |     |     |
| Arg  | Arg | Gly | Gln | Ser | Ala | Asp  | Lys | Leu | Gly | Thr | Gly  | Glu | Arg | Leu |
| 1220 |     |     |     |     |     | 1225 |     |     |     |     | 1230 |     |     |     |
| Asp  | Gly | Glu | Ala | Gly | Arg | Arg  | Thr | Arg | Gly | Pro | Glu  | Ala | Glu | Leu |
| 1235 |     |     |     |     |     | 1240 |     |     |     |     | 1245 |     |     |     |
| Val  | Val | Met | Arg | Arg | Leu | His  | Leu | Ser | Glu | Arg | Arg  | Asp | Ser | Phe |
| 1250 |     |     |     |     |     | 1255 |     |     |     |     | 1260 |     |     |     |
| Lys  | Lys | Gln | Glu | Ala | Val | Gln  | Glu | Val | Ser | Phe | Asp  | Glu | Pro | Gln |
| 1265 |     |     |     |     |     | 1270 |     |     |     |     | 1275 |     |     |     |



Glu Glu Ala Thr Gly Leu Pro Thr Ser Val Pro Gln Ile Ala Val  
 1280 1285 1290

Glu Gly Glu Glu Ala Val Pro Val Ala Leu Gly Pro Thr Gly Arg  
 1295 1300 1305

Asp

<210> 26  
 <211> 1331  
 <212> PRT  
 <213> Homo sapiens

<400> 26  
 Met Lys Ser Arg Arg Asp Lys Leu His Ile Pro Ala Leu Thr Leu Asp  
 1 5 10 15

Leu Ser Pro Ser Ser Gln Ser Pro Ser Leu Leu Gly Pro Ser Ser Pro  
 20 25 30

Cys Ser Pro Cys Ser Pro Ser Leu Gly Leu His Pro Trp Ser Cys Arg  
 35 40 45

Ser Gly Asn Arg Lys Ser Leu Val Val Gly Thr Pro Ser Pro Thr Leu  
 50 55 60

Ser Arg Pro Leu Ser Pro Leu Ser Val Pro Thr Ala Gly Ser Ser Pro  
 65 70 75 80

Leu Asp Ser Pro Arg Asn Phe Ser Ala Ala Ser Ala Leu Asn Phe Pro  
 85 90 95

Phe Ala Arg Arg Ala Asp Gly Arg Arg Trp Ser Leu Ala Ser Leu Pro  
 100 105 110

Ser Ser Gly Tyr Gly Thr Asn Thr Pro Ser Ser Thr Leu Ser Ser Ser  
 115 120 125

Ser Ser Ser Arg Glu Arg Leu His Gln Leu Pro Phe Gln Pro Thr Pro  
 130 135 140

Asp Glu Leu His Phe Leu Ser Lys His Phe Arg Ser Ser Glu Asn Val  
 145 150 155 160

Leu Asp Glu Glu Gly Gly Arg Ser Pro Arg Leu Arg Pro Arg Ser Arg  
 165 170 175

Ser Leu Ser Pro Gly Arg Ala Thr Gly Thr Phe Asp Asn Glu Ile Val  
 180 185 190

Met Met Asn His Val Tyr Arg Glu Arg Phe Pro Lys Ala Thr Ala Gln  
 195 200 205

Met Glu Gly Arg Leu Gln Glu Phe Leu Thr Ala Tyr Ala Pro Gly Ala  
 210 215 220

Arg Leu Ala Leu Ala Asp Gly Val Leu Gly Phe Ile His His Gln Ile  
 225 230 235 240

Val Glu Leu Ala Arg Asp Cys Leu Ala Lys Ser Gly Glu Asn Leu Val  
 245 250 255

Thr Ser Arg Tyr Phe Leu Glu Met Gln Glu Lys Leu Glu Arg Leu Leu  
 260 265 270

Gln Asp Ala His Glu Arg Ser Asp Ser Glu Glu Val Ser Phe Ile Val  
 275 280 285

Gln Leu Val Arg Lys Leu Leu Ile Ile Ile Ser Arg Pro Ala Arg Leu  
 290 295 300

Leu Glu Cys Leu Glu Phe Asp Pro Glu Glu Phe Tyr His Leu Leu Glu  
 305 310 315 320

Ala Ala Glu Gly His Ala Arg Glu Gly Gln Gly Ile Lys Thr Asp Leu  
 325 330 335

Pro Gln Tyr Ile Ile Gly Gln Leu Gly Leu Ala Lys Asp Pro Leu Glu  
 340 345 350

Glu Met Val Pro Leu Ser His Leu Glu Glu Glu Gln Pro Pro Ala Pro  
 355 360 365

Glu Ser Pro Glu Ser Arg Ala Leu Val Gly Gln Ser Arg Arg Lys Pro  
 370 375 380

Cys Glu Ser Asp Phe Glu Thr Ile Lys Leu Ile Ser Asn Gly Ala Tyr  
 385 390 395 400

Gly Ala Val Tyr Leu Val Arg His Arg Asp Thr Arg Gln Arg Phe Ala  
 405 410 415

Ile Lys Lys Ile Asn Lys Gln Asn Leu Ile Leu Arg Asn Gln Ile Gln  
 420 425 430

Gln Val Phe Val Glu Arg Asp Ile Leu Thr Phe Ala Glu Asn Pro Phe  
 435 440 445

Val Val Ser Met Phe Cys Ser Phe Glu Thr Arg Arg His Leu Cys Met  
 450 455 460

Val Met Glu Tyr Val Glu Gly Gly Asp Cys Ala Thr Leu Leu Lys Asn  
 465 470 475 480

Met Gly Pro Leu Pro Val Asp Met Ala Arg Leu Tyr Phe Ala Glu Thr  
 485 490 495

Val Leu Ala Leu Glu Tyr Leu His Asn Tyr Gly Ile Val His Arg Asp  
 500 505 510

Leu Lys Pro Asp Asn Leu Leu Ile Thr Ser Leu Gly His Ile Lys Leu  
 515 520 525

Thr Asp Phe Gly Leu Ser Lys Ile Gly Leu Met Ser Met Ala Thr Asn  
 530 535 540

Leu Tyr Glu Gly His Ile Glu Lys Asp Ala Arg Glu Phe Ile Asp Lys  
 545 550 555 560

Gln Val Cys Gly Thr Pro Glu Tyr Ile Ala Pro Glu Val Ile Phe Arg  
 565 570 575

Gln Gly Tyr Gly Lys Pro Val Asp Trp Trp Ala Met Gly Val Val Leu  
 580 585 590

Tyr Glu Phe Leu Val Gly Cys Val Pro Phe Phe Gly Asp Thr Pro Glu  
 595 600 605

Glu Leu Phe Gly Gln Val Val Ser Asp Glu Ile Met Trp Pro Glu Gly  
 610 615 620

Asp Glu Ala Leu Pro Ala Asp Ala Gln Asp Leu Ile Thr Arg Leu Leu  
625 630 635 640

Arg Gln Ser Pro Leu Asp Arg Leu Gly Thr Gly Gly Thr His Glu Val  
645 650 655

Lys Gln His Pro Phe Phe Leu Ala Leu Asp Trp Ala Gly Leu Leu Arg  
660 665 670

His Lys Ala Glu Phe Val Pro Gln Leu Glu Ala Glu Asp Asp Thr Ser  
675 680 685

Tyr Phe Asp Thr Arg Ser Glu Arg Tyr Arg His Leu Gly Ser Glu Asp  
690 695 700

Asp Glu Thr Asn Asp Glu Glu Ser Ser Thr Glu Ile Pro Gln Phe Ser  
705 710 715 720

Ser Cys Ser His Arg Phe Ser Lys Val Tyr Ser Ser Ser Glu Phe Leu  
725 730 735

Ala Val Gln Pro Thr Pro Thr Phe Ala Glu Arg Ser Phe Ser Glu Asp  
740 745 750

Arg Glu Glu Gly Trp Glu Arg Ser Glu Val Asp Tyr Gly Arg Arg Leu  
755 760 765

Ser Ala Asp Ile Arg Leu Arg Ser Trp Thr Ser Ser Gly Ser Ser Cys  
770 775 780

Gln Ser Ser Ser Ser Gln Pro Glu Arg Gly Pro Ser Pro Ser Leu Leu  
785 790 795 800

Asn Thr Ile Ser Leu Asp Thr Met Pro Lys Phe Ala Phe Ser Ser Glu  
805 810 815

Asp Glu Gly Val Gly Pro Gly Pro Ala Gly Pro Lys Arg Pro Val Phe  
820 825 830

Ile Leu Gly Glu Pro Asp Pro Pro Pro Ala Ala Thr Pro Val Met Pro  
835 840 845

Lys Pro Ser Ser Leu Ser Ala Asp Thr Ala Ala Leu Ser His Ala Arg  
 850 855 860

Leu Arg Ser Asn Ser Ile Gly Ala Arg His Ser Thr Pro Arg Pro Leu  
 865 870 875 880

Asp Ala Gly Arg Gly Arg Arg Leu Gly Gly Pro Arg Asp Pro Ala Pro  
 885 890 895

Glu Lys Ser Arg Ala Ser Ser Ser Gly Gly Ser Gly Gly Gly Ser Gly  
 900 905 910

Gly Arg Val Pro Lys Ser Ala Ser Val Ser Ala Leu Ser Leu Ile Ile  
 915 920 925

Thr Ala Asp Asp Gly Ser Gly Gly Pro Leu Met Ser Pro Leu Ser Pro  
 930 935 940

Arg Ser Leu Ser Ser Asn Pro Ser Ser Arg Asp Ser Ser Pro Ser Arg  
 945 950 955 960

Asp Pro Ser Pro Val Cys Gly Ser Leu Arg Pro Pro Ile Val Ile His  
 965 970 975

Ser Ser Gly Lys Lys Tyr Gly Phe Ser Leu Arg Ala Ile Arg Val Tyr  
 980 985 990

Met Gly Asp Ser Asp Val Tyr Thr Val His His Val Val Trp Ser Val  
 995 1000 1005

Glu Asp Gly Ser Pro Ala Gln Glu Ala Gly Leu Arg Ala Gly Asp  
 1010 1015 1020

Leu Ile Thr His Ile Asn Gly Glu Ser Val Leu Gly Leu Val His  
 1025 1030 1035

Met Asp Val Val Glu Leu Leu Leu Lys Ser Gly Asn Lys Ile Ser  
 1040 1045 1050

Leu Arg Thr Thr Ala Leu Glu Asn Thr Ser Ile Lys Val Gly Pro  
 1055 1060 1065

Ala Arg Lys Asn Val Ala Lys Gly Arg Met Ala Arg Arg Ser Lys  
 1070 1075 1080

|      |     |     |     |     |     |      |     |     |     |     |      |     |     |     |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Arg  | Ser | Arg | Arg | Arg | Glu | Thr  | Gln | Asp | Arg | Arg | Lys  | Ser | Leu | Phe |
| 1085 |     |     |     |     |     | 1090 |     |     |     |     | 1095 |     |     |     |
| Lys  | Lys | Ile | Ser | Lys | Gln | Thr  | Ser | Val | Leu | His | Thr  | Ser | Arg | Ser |
| 1100 |     |     |     |     |     | 1105 |     |     |     |     | 1110 |     |     |     |
| Phe  | Ser | Ser | Gly | Leu | His | His  | Ser | Leu | Ser | Ser | Ser  | Glu | Ser | Leu |
| 1115 |     |     |     |     |     | 1120 |     |     |     |     | 1125 |     |     |     |
| Pro  | Gly | Ser | Pro | Thr | His | Ser  | Leu | Ser | Pro | Ser | Pro  | Thr | Thr | Pro |
| 1130 |     |     |     |     |     | 1135 |     |     |     |     | 1140 |     |     |     |
| Cys  | Arg | Ser | Pro | Ala | Pro | Asp  | Val | Pro | Ala | Asp | Thr  | Thr | Ala | Ser |
| 1145 |     |     |     |     |     | 1150 |     |     |     |     | 1155 |     |     |     |
| Pro  | Pro | Ser | Ala | Ser | Pro | Ser  | Ser | Ser | Ser | Pro | Ala  | Ser | Pro | Ala |
| 1160 |     |     |     |     |     | 1165 |     |     |     |     | 1170 |     |     |     |
| Ala  | Ala | Gly | His | Thr | Arg | Pro  | Ser | Ser | Leu | His | Gly  | Leu | Ala | Ala |
| 1175 |     |     |     |     |     | 1180 |     |     |     |     | 1185 |     |     |     |
| Lys  | Leu | Gly | Pro | Pro | Arg | Pro  | Lys | Thr | Gly | Arg | Arg  | Lys | Ser | Thr |
| 1190 |     |     |     |     |     | 1195 |     |     |     |     | 1200 |     |     |     |
| Ser  | Ser | Ile | Pro | Pro | Ser | Pro  | Leu | Ala | Cys | Pro | Pro  | Ile | Ser | Ala |
| 1205 |     |     |     |     |     | 1210 |     |     |     |     | 1215 |     |     |     |
| Pro  | Pro | Pro | Arg | Ser | Pro | Ser  | Pro | Leu | Pro | Gly | His  | Pro | Pro | Ala |
| 1220 |     |     |     |     |     | 1225 |     |     |     |     | 1230 |     |     |     |
| Pro  | Ala | Arg | Ser | Pro | Arg | Leu  | Arg | Arg | Gly | Gln | Ser  | Ala | Asp | Lys |
| 1235 |     |     |     |     |     | 1240 |     |     |     |     | 1245 |     |     |     |
| Leu  | Gly | Thr | Gly | Glu | Arg | Leu  | Asp | Gly | Glu | Ala | Gly  | Arg | Arg | Thr |
| 1250 |     |     |     |     |     | 1255 |     |     |     |     | 1260 |     |     |     |
| Arg  | Gly | Pro | Glu | Ala | Glu | Leu  | Val | Val | Met | Arg | Arg  | Leu | His | Leu |
| 1265 |     |     |     |     |     | 1270 |     |     |     |     | 1275 |     |     |     |
| Ser  | Glu | Arg | Arg | Asp | Ser | Phe  | Lys | Lys | Gln | Glu | Ala  | Val | Gln | Glu |
| 1280 |     |     |     |     |     | 1285 |     |     |     |     | 1290 |     |     |     |

Val Ser Phe Asp Glu Pro Gln Glu Glu Ala Thr Gly Leu Pro Thr  
 1295 1300 1305

Ser Val Pro Gln Ile Ala Val Glu Gly Glu Glu Ala Val Pro Val  
 1310 1315 1320

Ala Leu Gly Pro Thr Gly Arg Asp  
 1325 1330

<210> 27  
 <211> 80  
 <212> PRT  
 <213> Homo sapiens

<400> 27  
 Met Tyr Ser Leu Asn Gln Glu Ile Lys Ala Phe Ser Arg Asn Asn Pro  
 1 5 10 15

Arg Lys Gln Cys Thr Arg Val Thr Thr Leu Thr Gly Lys Lys Ile Ile  
 20 25 30

Glu Thr Trp Lys Asp Ala Arg Ile His Val Val Glu Glu Val Glu Pro  
 35 40 45

Ser Ser Gly Gly Gly Cys Gly Tyr Val Gln Asp Leu Ser Ser Asp Gln  
 50 55 60

Gln Val Gly Val Ile Lys Pro Trp Leu Leu Leu Gly Asp Ser Tyr Ser  
 65 70 75 80

<210> 28  
 <211> 495  
 <212> PRT  
 <213> Homo sapiens

<400> 28  
 Met Cys Gln Ala Pro Cys Trp Arg Ala Gly Gly Ser Gly Leu Gly Arg  
 1 5 10 15

Cys Ser Leu Cys Arg Ser Cys Ser Leu Ala Arg Phe Pro Arg Leu Pro  
 20 25 30

Ser Phe Pro Pro Pro Gly Arg Leu Arg Ala Gly Val Cys Ala Arg Glu  
 35 40 45

Gly Glu Gly Val Gly Gly Val Gly Gly Gly Val Pro Val Pro Lys Arg  
 50 55 60

Pro Ala Glu Gly Gly Gly Gly Cys Glu Gly Leu Arg Glu Ala Met Asp  
65 70 75 80

Val Glu Arg Leu Gln Glu Ala Leu Lys Asp Phe Glu Lys Arg Gly Lys  
85 90 95

Lys Glu Val Cys Pro Val Leu Asp Gln Phe Leu Cys His Val Ala Lys  
100 105 110

Thr Gly Glu Thr Met Ile Gln Trp Ser Gln Phe Lys Gly Tyr Phe Ile  
115 120 125

Phe Lys Leu Glu Lys Val Met Asp Asp Phe Arg Thr Ser Ala Pro Glu  
130 135 140

Pro Arg Gly Pro Pro Asn Pro Asn Val Glu Tyr Ile Pro Phe Asp Glu  
145 150 155 160

Met Lys Glu Arg Ile Leu Lys Ile Val Thr Gly Phe Asn Gly Ile Pro  
165 170 175

Phe Thr Ile Gln Arg Leu Cys Glu Leu Leu Thr Asp Pro Arg Arg Asn  
180 185 190

Tyr Thr Gly Thr Asp Lys Phe Leu Arg Gly Val Glu Lys Asn Val Met  
195 200 205

Val Val Ser Cys Val Tyr Pro Ser Ser Glu Lys Asn Asn Ser Asn Ser  
210 215 220

Leu Asn Arg Met Asn Gly Val Met Phe Pro Gly Asn Ser Pro Ser Tyr  
225 230 235 240

Thr Glu Arg Ser Asn Ile Asn Gly Pro Gly Thr Pro Arg Pro Leu Asn  
245 250 255

Arg Pro Lys Val Ser Leu Ser Ala Pro Met Thr Thr Asn Gly Leu Pro  
260 265 270

Glu Ser Thr Asp Ser Lys Glu Ala Asn Leu Gln Gln Asn Glu Glu Lys  
275 280 285



Asn His Ser Asp Ser Ser Thr Ser Glu Ser Glu Val Ser Ser Val Ser  
 290 295 300

Pro Leu Lys Asn Lys His Pro Asp Glu Asp Ala Val Glu Ala Glu Gly  
 305 310 315 320

His Glu Val Lys Arg Leu Arg Phe Asp Lys Glu Gly Glu Val Arg Glu  
 325 330 335

Thr Ala Ser Gln Thr Thr Ser Ser Glu Ile Ser Ser Val Met Val Gly  
 340 345 350

Glu Thr Glu Ala Ser Ser Ser Ser Gln Asp Lys Asp Lys Asp Ser Arg  
 355 360 365

Cys Thr Arg Gln His Cys Thr Glu Glu Asp Glu Glu Glu Asp Glu Glu  
 370 375 380

Glu Glu Glu Glu Ser Phe Met Thr Ser Arg Glu Met Ile Pro Glu Arg  
 385 390 395 400

Lys Asn Gln Glu Lys Glu Ser Asp Asp Ala Leu Thr Val Asn Glu Glu  
 405 410 415

Thr Ser Glu Glu Asn Asn Gln Met Glu Glu Ser Asp Val Ser Gln Ala  
 420 425 430

Glu Lys Asp Leu Leu His Ser Glu Gly Ser Glu Asn Glu Gly Pro Val  
 435 440 445

Ser Ser Ser Ser Ser Asp Cys Arg Glu Thr Glu Glu Leu Val Gly Ser  
 450 455 460

Asn Ser Ser Lys Thr Gly Glu Ile Leu Ser Glu Ser Ser Met Glu Asn  
 465 470 475 480

Asp Asp Glu Ala Thr Glu Val Thr Asp Glu Pro Met Glu Gln Asp  
 485 490 495

<210> 29

<211> 157

<212> PRT

<213> Homo sapiens

&lt;400&gt; 29

Met Ala His Ser Pro Val Gln Ser Gly Leu Pro Gly Met Gln Asn Leu  
 1 5 10 15

Lys Ala Asp Pro Glu Glu Leu Phe Thr Lys Leu Glu Lys Ile Gly Lys  
 20 25 30

Gly Ser Phe Gly Glu Val Phe Lys Gly Ile Asp Asn Arg Thr Gln Lys  
 35 40 45

Val Val Ala Ile Lys Ile Ile Asp Leu Glu Glu Ala Glu Asp Glu Ile  
 50 55 60

Glu Asp Ile Gln Gln Glu Ile Thr Val Leu Ser Gln Cys Asp Ser Pro  
 65 70 75 80

Tyr Val Thr Lys Tyr Tyr Gly Ser Tyr Leu Lys Asp Thr Lys Leu Trp  
 85 90 95

Ile Ile Met Glu Tyr Leu Gly Gly Gly Ser Ala Leu Asp Leu Leu Glu  
 100 105 110

Pro Gly Pro Leu Asp Glu Thr Gln Ile Ala Thr Ile Leu Arg Glu Ile  
 115 120 125

Leu Lys Gly Leu Asp Tyr Leu His Ser Glu Lys Lys Ile His Arg Asp  
 130 135 140

Ile Lys Gly Arg His Leu Val Pro Gly His Asn Ser Tyr  
 145 150 155

&lt;210&gt; 30

&lt;211&gt; 305

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 30

Met Asp Phe Asp Lys Lys Gly Gly Lys Gly Glu Thr Glu Glu Gly Arg  
 1 5 10 15

Arg Met Ser Lys Ala Gly Gly Gly Arg Ser Ser His Gly Ile Arg Ser  
 20 25 30

Ser Gly Thr Ser Ser Gly Val Leu Met Val Gly Pro Asn Phe Arg Val  
 35 40 45

Gly Lys Lys Ile Gly Cys Gly Asn Phe Gly Glu Leu Arg Leu Gly Lys  
 50 55 60

Asn Leu Tyr Thr Asn Glu Tyr Val Ala Ile Lys Leu Val Ser Arg Pro  
 65 70 75 80

Leu His Pro Thr Pro Ala Asp Val Pro Pro Arg Asp Phe Arg Ala Ala  
 85 90 95

Thr Arg Ser Pro Gly Asp Ser Leu Leu Cys Pro Gln Glu Pro Ile Lys  
 100 105 110

Ser Arg Ala Pro Gln Leu His Leu Glu Tyr Arg Phe Tyr Lys Gln Leu  
 115 120 125

Ser Ala Thr Glu Gly Val Pro Gln Val Tyr Tyr Phe Gly Pro Cys Gly  
 130 135 140

Lys Tyr Asn Ala Met Val Leu Glu Leu Leu Gly Pro Ile Leu Glu Asp  
 145 150 155 160

Leu Phe Asp Leu Cys Asp Arg Thr Phe Thr Leu Thr Thr Val Leu Met  
 165 170 175

Ile Ala Ile Gln Leu Ile Thr Arg Met Glu Tyr Val His Thr Lys Ser  
 180 185 190

Leu Ile Tyr Arg Asp Val Lys Pro Glu Asn Phe Leu Val Gly Arg Pro  
 195 200 205

Gly Thr Lys Arg Gln His Ala Ile His Ile Ile Asp Phe Gly Leu Ala  
 210 215 220

Lys Glu Tyr Ile Asp Pro Glu Thr Lys Lys His Ile Pro Tyr Arg Glu  
 225 230 235 240

His Lys Ser Leu Thr Gly Thr Ala Arg Tyr Met Ser Ile Asn Thr His  
 245 250 255

Leu Gly Lys Glu Gln Ser Arg Arg Asp Asp Leu Glu Ala Leu Gly His  
 260 265 270

Met Phe Met Tyr Phe Leu Arg Gly Ser Leu Pro Trp Gln Gly Leu Lys

275                                      280                                      285  
 Val Gly Glu Glu Ala Gly Gln Ala Gly Gly Asp Ala Gly Arg Glu Gln  
       290                                      295                                      300  
  
 Gly  
 305  
  
 <210> 31  
 <211> 930  
 <212> PRT  
 <213> Homo sapiens  
  
 <400> 31  
 Met Lys Lys Phe Phe Asp Ser Arg Arg Glu Gln Gly Gly Ser Gly Leu  
   1                                      5                                      10                                      15  
  
 Gly Ser Gly Ser Ser Gly Gly Gly Gly Ser Thr Ser Gly Leu Gly Ser  
                                     20                                      25                                      30  
  
 Gly Tyr Ile Gly Arg Val Phe Gly Ile Gly Arg Gln Gln Val Thr Val  
                                     35                                      40                                      45  
  
 Asp Glu Val Leu Ala Glu Gly Gly Phe Ala Ile Val Phe Leu Val Arg  
   50                                      55                                      60  
  
 Thr Ser Asn Gly Met Lys Cys Ala Leu Lys Arg Met Phe Val Asn Asn  
   65                                      70                                      75                                      80  
  
 Glu His Asp Leu Gln Val Cys Lys Arg Glu Ile Gln Ile Met Arg Asp  
                                     85                                      90                                      95  
  
 Leu Ser Gly His Lys Asn Ile Val Gly Tyr Ile Asp Ser Ser Ile Asn  
                                     100                                      105                                      110  
  
 Asn Val Ser Ser Gly Asp Val Trp Glu Val Leu Ile Leu Met Asp Phe  
   115                                      120                                      125  
  
 Cys Arg Gly Gly Gln Val Val Asn Leu Met Asn Gln Arg Leu Gln Thr  
   130                                      135                                      140  
  
 Gly Phe Thr Glu Asn Glu Val Leu Gln Ile Phe Cys Asp Thr Cys Glu  
   145                                      150                                      155                                      160

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Val | Ala | Arg | Leu | His | Gln | Cys | Lys | Thr | Pro | Ile | Ile | His | Arg | Asp |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Lys | Val | Glu | Asn | Ile | Leu | Leu | His | Asp | Arg | Gly | His | Tyr | Val | Leu |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Cys | Asp | Phe | Gly | Ser | Ala | Thr | Asn | Lys | Phe | Gln | Asn | Pro | Gln | Thr | Glu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gly | Val | Asn | Ala | Val | Glu | Asp | Glu | Ile | Lys | Lys | Tyr | Thr | Thr | Leu | Ser |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tyr | Arg | Ala | Pro | Glu | Met | Val | Asn | Leu | Tyr | Ser | Gly | Lys | Ile | Ile | Thr |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Thr | Lys | Ala | Asp | Ile | Trp | Ala | Leu | Gly | Cys | Leu | Leu | Tyr | Lys | Leu | Cys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tyr | Phe | Thr | Leu | Pro | Phe | Gly | Glu | Ser | Gln | Val | Ala | Ile | Cys | Asp | Gly |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Asn | Phe | Thr | Ile | Pro | Asp | Asn | Ser | Arg | Tyr | Ser | Gln | Asp | Met | His | Cys |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Ile | Arg | Tyr | Met | Leu | Glu | Pro | Asp | Pro | Asp | Lys | Arg | Pro | Asp | Ile |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Tyr | Gln | Val | Ser | Tyr | Phe | Ser | Phe | Lys | Leu | Leu | Lys | Lys | Glu | Cys | Pro |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ile | Pro | Asn | Val | Gln | Asn | Ser | Pro | Ile | Pro | Ala | Lys | Leu | Pro | Glu | Pro |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Val | Lys | Ala | Ser | Glu | Ala | Ala | Ala | Lys | Lys | Thr | Gln | Pro | Lys | Ala | Arg |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Thr | Asp | Pro | Ile | Pro | Thr | Thr | Glu | Thr | Ser | Ile | Ala | Pro | Arg | Gln |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Arg | Pro | Lys | Ala | Gly | Gln | Thr | Gln | Pro | Asn | Pro | Gly | Ile | Leu | Pro | Ile |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gln | Pro | Ala | Leu | Thr | Pro | Arg | Lys | Arg | Ala | Thr | Val | Gln | Pro | Pro | Pro |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |

Gln Ala Ala Gly Ser Ser Asn Gln Pro Gly Leu Leu Ala Ser Val Pro  
 405 410 415

Gln Pro Lys Pro Gln Ala Pro Pro Ser Gln Pro Leu Pro Gln Thr Gln  
 420 425 430

Ala Lys Gln Pro Gln Ala Pro Pro Thr Pro Gln Gln Thr Pro Ser Thr  
 435 440 445

Gln Ala Gln Gly Leu Pro Ala Gln Ala Gln Ala Thr Pro Gln His Gln  
 450 455 460

Gln Gln Leu Phe Leu Lys Gln Gln Gln Gln Gln Gln Gln Pro Pro Pro  
 465 470 475 480

Ala Gln Gln Gln Pro Ala Gly Thr Phe Tyr Gln Gln Gln Gln Ala Gln  
 485 490 495

Thr Gln Gln Phe Gln Ala Val His Pro Ala Thr Gln Gln Pro Ala Ile  
 500 505 510

Ala Gln Phe Pro Val Val Ser Gln Gly Gly Ser Gln Gln Gln Leu Met  
 515 520 525

Gln Asn Phe Tyr Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln Gln  
 530 535 540

Gln Gln Leu Ala Thr Ala Leu His Gln Gln Gln Leu Met Thr Gln Gln  
 545 550 555 560

Ala Ala Leu Gln Gln Lys Pro Thr Met Ala Ala Gly Gln Gln Pro Gln  
 565 570 575

Pro Gln Pro Ala Ala Ala Pro Gln Pro Ala Pro Ala Gln Glu Pro Ala  
 580 585 590

Gln Ile Gln Ala Pro Val Arg Gln Gln Pro Lys Val Gln Thr Thr Pro  
 595 600 605

Pro Pro Ala Val Gln Gly Gln Lys Val Gly Ser Leu Thr Pro Pro Ser  
 610 615 620

Ser Pro Lys Thr Gln Arg Ala Gly His Arg Arg Ile Leu Ser Asp Val  
 625 630 635 640

Thr His Ser Ala Val Phe Gly Val Pro Ala Ser Lys Ser Thr Gln Leu  
 645 650 655

Leu Gln Ala Ala Ala Ala Glu Ala Ser Leu Asn Lys Ser Lys Ser Ala  
 660 665 670

Thr Thr Thr Pro Ser Gly Ser Pro Arg Thr Ser Gln Gln Asn Val Tyr  
 675 680 685

Asn Pro Ser Glu Gly Ser Thr Trp Asn Pro Phe Asp Asp Asp Asn Phe  
 690 695 700

Ser Lys Leu Thr Ala Glu Glu Leu Leu Asn Lys Asp Phe Ala Lys Leu  
 705 710 715 720

Gly Glu Gly Lys His Pro Glu Lys Leu Gly Gly Ser Ala Glu Ser Leu  
 725 730 735

Ile Pro Gly Phe Gln Ser Thr Gln Gly Asp Ala Phe Ala Thr Thr Ser  
 740 745 750

Phe Ser Ala Gly Thr Glu Lys Leu Ile Glu Gly Leu Lys Ser Pro Asp  
 755 760 765

Thr Ser Leu Leu Leu Pro Asp Leu Leu Pro Met Thr Asp Pro Phe Gly  
 770 775 780

Ser Thr Ser Asp Ala Val Ile Glu Lys Ala Asp Val Ala Val Glu Ser  
 785 790 795 800

Leu Ile Pro Gly Leu Glu Pro Pro Val Pro Gln Arg Leu Pro Ser Gln  
 805 810 815

Thr Glu Ser Val Thr Ser Asn Arg Thr Asp Ser Leu Thr Gly Glu Asp  
 820 825 830

Ser Leu Leu Asp Cys Ser Leu Leu Ser Asn Pro Thr Thr Asp Leu Leu  
 835 840 845

Glu Glu Phe Ala Pro Thr Ala Ile Ser Ala Pro Val His Lys Ala Ala  
 850 855 860

Glu Asp Ser Asn Leu Ile Ser Gly Phe Asp Val Pro Glu Gly Ser Asp  
865 870 875 880

Lys Val Ala Glu Asp Glu Phe Asp Pro Ile Pro Val Leu Ile Thr Lys  
885 890 895

Asn Pro Gln Gly Gly His Ser Arg Asn Ser Ser Gly Ser Ser Glu Ser  
900 905 910

Ser Leu Pro Asn Leu Ala Arg Ser Leu Leu Leu Val Asp Gln Leu Ile  
915 920 925

Asp Leu  
930

<210> 32

<211> 118

<212> PRT

<213> Homo sapiens

<400> 32

Met Ser Leu Leu Gln Ser Ala Leu Asp Phe Leu Ala Gly Pro Gly Ser  
1 5 10 15

Leu Gly Gly Ala Ser Gly Arg Asp Gln Ser Asp Phe Val Gly Gln Thr  
20 25 30

Val Glu Leu Gly Glu Leu Arg Leu Arg Val Arg Arg Val Leu Ala Glu  
35 40 45

Gly Gly Phe Ala Phe Val Tyr Glu Ala Gln Asp Val Gly Ser Gly Arg  
50 55 60

Glu Tyr Ala Leu Lys Arg Leu Leu Ser Asn Glu Glu Glu Lys Asn Arg  
65 70 75 80

Ala Ile Ile Gln Glu Val Cys Phe Met Leu Cys Ser Leu Gly Glu Pro  
85 90 95

Ala Gly Cys Leu Ser Val Gly Ser Gly Gly His Ser His Ala Ser Ala  
100 105 110

Ser Leu Arg Thr Ala Pro  
115



<210> 33  
 <211> 1355  
 <212> PRT  
 <213> Homo sapiens

<400> 33  
 Met Ser Leu Leu Gln Ser Ala Leu Asp Phe Leu Ala Gly Pro Gly Ser  
 1 5 10 15  
 Leu Gly Gly Ala Ser Gly Arg Asp Gln Ser Asp Phe Val Gly Gln Thr  
 20 25 30  
 Val Glu Leu Gly Glu Leu Arg Leu Arg Val Arg Arg Val Leu Ala Glu  
 35 40 45  
 Gly Gly Phe Ala Phe Val Tyr Glu Ala Gln Asp Val Gly Ser Gly Arg  
 50 55 60  
 Glu Tyr Ala Leu Lys Arg Leu Leu Ser Asn Glu Glu Glu Lys Asn Arg  
 65 70 75 80  
 Ala Ile Ile Gln Glu Val Cys Phe Met Lys Lys Leu Ser Gly His Pro  
 85 90 95  
 Asn Ile Val Gln Phe Cys Ser Ala Ala Ser Ile Gly Lys Glu Glu Ser  
 100 105 110  
 Asp Thr Gly Gln Ala Glu Phe Leu Leu Leu Thr Glu Leu Cys Lys Gly  
 115 120 125  
 Gln Leu Val Glu Phe Leu Lys Lys Met Glu Ser Arg Gly Pro Leu Ser  
 130 135 140  
 Cys Asp Thr Val Leu Lys Ile Phe Tyr Gln Thr Cys Arg Ala Val Gln  
 145 150 155 160  
 His Met His Arg Gln Lys Pro Pro Ile Ile His Arg Asp Leu Lys Val  
 165 170 175  
 Glu Asn Leu Leu Leu Ser Asn Gln Gly Thr Ile Lys Leu Cys Asp Phe  
 180 185 190  
 Gly Ser Ala Thr Thr Ile Ser His Tyr Pro Asp Tyr Ser Trp Ser Ala  
 195 200 205

Gln Arg Arg Ala Leu Val Glu Glu Glu Ile Thr Arg Asn Thr Thr Pro  
 210 215 220

Met Tyr Arg Thr Pro Glu Ile Ile Asp Leu Tyr Ser Asn Phe Pro Ile  
 225 230 235 240

Gly Glu Lys Gln Asp Ile Trp Ala Leu Gly Cys Ile Leu Tyr Leu Leu  
 245 250 255

Cys Phe Arg Gln His Pro Phe Glu Asp Gly Ala Lys Leu Arg Ile Val  
 260 265 270

Asn Gly Lys Tyr Ser Ile Pro Pro His Asp Thr Gln Tyr Thr Val Phe  
 275 280 285

His Ser Leu Ile Arg Ala Met Leu Gln Val Asn Pro Glu Glu Arg Leu  
 290 295 300

Ser Ile Ala Glu Val Val His Gln Leu Gln Glu Ile Ala Ala Ala Arg  
 305 310 315 320

Asn Val Asn Pro Lys Ser Pro Ile Thr Glu Leu Leu Glu Gln Asn Gly  
 325 330 335

Gly Tyr Gly Ser Ala Thr Leu Ser Arg Gly Pro Pro Pro Pro Val Gly  
 340 345 350

Pro Ala Gly Ser Gly Tyr Ser Gly Gly Leu Ala Leu Ala Glu Tyr Asp  
 355 360 365

Gln Pro Tyr Gly Gly Phe Leu Asp Ile Leu Arg Gly Gly Thr Glu Arg  
 370 375 380

Leu Phe Thr Asn Leu Lys Asp Thr Ser Ser Lys Val Ile Gln Ser Val  
 385 390 395 400

Ala Asn Tyr Ala Lys Gly Asp Leu Asp Ile Ser Tyr Ile Thr Ser Arg  
 405 410 415

Ile Ala Val Met Ser Phe Pro Ala Glu Gly Val Glu Ser Ala Leu Lys  
 420 425 430

Asn Asn Ile Glu Asp Val Arg Leu Phe Leu Asp Ser Lys His Pro Gly  
 435 440 445

His Tyr Ala Val Tyr Asn Leu Ser Pro Arg Thr Tyr Arg Pro Ser Arg  
 450 455 460

Phe His Asn Arg Val Ser Glu Cys Gly Trp Ala Ala Arg Arg Ala Pro  
 465 470 475 480

His Leu His Thr Leu Tyr Asn Ile Cys Arg Asn Met His Ala Trp Leu  
 485 490 495

Arg Gln Asp His Lys Asn Val Cys Val Val His Cys Met Asp Gly Arg  
 500 505 510

Ala Ala Ser Ala Val Ala Val Cys Ser Phe Leu Cys Phe Cys Arg Leu  
 515 520 525

Phe Ser Thr Ala Glu Ala Ala Val Tyr Met Phe Ser Met Lys Arg Cys  
 530 535 540

Pro Pro Gly Ile Trp Pro Ser His Lys Arg Tyr Ile Glu Tyr Met Cys  
 545 550 555 560

Asp Met Val Ala Glu Glu Pro Ile Thr Pro His Ser Lys Pro Ile Leu  
 565 570 575

Val Arg Ala Val Val Met Thr Pro Val Pro Leu Phe Ser Lys Gln Arg  
 580 585 590

Ser Gly Cys Arg Pro Phe Cys Glu Val Tyr Val Gly Asp Glu Arg Val  
 595 600 605

Ala Ser Thr Ser Gln Glu Tyr Asp Lys Met Arg Asp Phe Lys Ile Glu  
 610 615 620

Asp Gly Ile Ala Val Ile Pro Leu Gly Val Thr Val Gln Gly Asp Val  
 625 630 635 640

Leu Ile Val Ile Tyr His Ala Arg Ser Thr Leu Gly Gly Arg Leu Gln  
 645 650 655

Ala Lys Met Ala Ser Met Lys Met Phe Gln Ile Gln Phe His Thr Gly  
 660 665 670

Phe Val Pro Arg Asn Ala Thr Thr Val Lys Phe Ala Lys Tyr Asp Leu  
 675 680 685

Asp Ala Cys Asp Ile Gln Glu Lys Tyr Pro Asp Leu Phe Gln Val Asn  
 690 695 700

Leu Glu Val Glu Val Glu Pro Arg Asp Arg Pro Ser Arg Glu Ala Pro  
 705 710 715 720

Pro Trp Glu Asn Ser Ser Met Arg Gly Leu Asn Pro Lys Ile Leu Phe  
 725 730 735

Ser Ser Arg Glu Glu Gln Gln Asp Ile Leu Ser Lys Phe Gly Lys Pro  
 740 745 750

Glu Leu Pro Arg Gln Pro Gly Ser Thr Ala Gln Tyr Asp Ala Gly Ala  
 755 760 765

Gly Ser Pro Glu Ala Glu Pro Thr Asp Ser Asp Ser Pro Pro Ser Ser  
 770 775 780

Ser Ala Asp Ala Ser Arg Phe Leu His Thr Leu Asp Trp Gln Glu Glu  
 785 790 795 800

Lys Glu Ala Glu Thr Gly Ala Glu Asn Ala Ser Ser Lys Glu Ser Glu  
 805 810 815

Ser Ala Leu Met Glu Asp Arg Asp Glu Ser Glu Val Ser Asp Glu Gly  
 820 825 830

Gly Ser Pro Ile Ser Ser Glu Gly Gln Glu Pro Arg Ala Asp Pro Glu  
 835 840 845

Pro Pro Gly Leu Ala Ala Gly Leu Val Gln Gln Asp Leu Val Phe Glu  
 850 855 860

Val Glu Thr Pro Ala Val Leu Pro Glu Pro Val Pro Gln Glu Asp Gly  
 865 870 875 880

Val Asp Leu Leu Gly Leu His Ser Glu Val Gly Ala Gly Pro Ala Val  
 885 890 895

Pro Pro Gln Ala Cys Lys Ala Pro Ser Ser Asn Thr Asp Leu Leu Ser  
                   900                                  905                                  910

Cys Leu Leu Gly Pro Pro Glu Ala Ala Ser Gln Gly Pro Pro Glu Asp  
                   915                                  920                                  925

Leu Leu Ser Glu Asp Pro Leu Leu Leu Ala Ser Pro Ala Pro Pro Leu  
                   930                                  935                                  940

Ser Val Gln Ser Thr Pro Arg Gly Gly Pro Pro Ala Ala Ala Asp Pro  
                   945                                  950                                  955                                  960

Phe Gly Pro Leu Leu Pro Ser Ser Gly Asn Asn Ser Gln Pro Cys Ser  
                                   965                                  970                                  975

Asn Pro Asp Leu Phe Gly Glu Phe Leu Asn Ser Asp Ser Val Thr Val  
                   980                                  985                                  990

Pro Pro Ser Phe Pro Ser Ala His Ser Ala Pro Pro Pro Ser Cys Ser  
                   995                                  1000                                  1005

Ala Asp Phe Leu His Leu Gly Asp Leu Pro Gly Glu Pro Ser Lys  
                   1010                                  1015                                  1020

Met Thr Ala Ser Ser Ser Asn Pro Asp Leu Leu Gly Gly Trp Ala  
                   1025                                  1030                                  1035

Ala Trp Thr Glu Thr Ala Ala Ser Ala Val Ala Pro Thr Pro Ala  
                   1040                                  1045                                  1050

Thr Glu Gly Pro Leu Phe Ser Pro Gly Gly Gln Pro Ala Pro Cys  
                   1055                                  1060                                  1065

Gly Ser Gln Ala Ser Trp Thr Lys Ser Gln Asn Pro Asp Pro Phe  
                   1070                                  1075                                  1080

Ala Asp Leu Gly Asp Leu Ser Ser Gly Leu Gln Asp Pro Gln Ala  
                   1085                                  1090                                  1095

Gln Ser Thr Val Ser Pro Arg Gly Gln Arg Val Cys Thr Cys Ser  
                   1100                                  1105                                  1110

Arg Arg Leu Pro Thr Gly Lys Leu Lys Pro Gly Val Ala Asp Thr  
                   1115                                  1120                                  1125

|      |     |     |     |     |     |      |     |     |     |     |      |     |     |     |
|------|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|
| Gly  | Thr | Ala | Ala | Ser | Pro | His  | Arg | His | Cys | Gly | Ser  | Pro | Ala | Gly |
| 1130 |     |     |     |     |     | 1135 |     |     |     |     | 1140 |     |     |     |
| Phe  | Pro | Pro | Gly | Gly | Phe | Ile  | Pro | Lys | Thr | Ala | Thr  | Thr | Pro | Lys |
| 1145 |     |     |     |     |     | 1150 |     |     |     |     | 1155 |     |     |     |
| Gly  | Ser | Ser | Ser | Trp | Gln | Thr  | Ser | Arg | Pro | Pro | Ala  | Gln | Gly | Ala |
| 1160 |     |     |     |     |     | 1165 |     |     |     |     | 1170 |     |     |     |
| Ser  | Trp | Pro | Pro | Gln | Ala | Lys  | Pro | Pro | Pro | Lys | Ala  | Cys | Thr | Gln |
| 1175 |     |     |     |     |     | 1180 |     |     |     |     | 1185 |     |     |     |
| Pro  | Arg | Pro | Asn | Tyr | Ala | Ser  | Asn | Phe | Ser | Val | Ile  | Gly | Ala | Arg |
| 1190 |     |     |     |     |     | 1195 |     |     |     |     | 1200 |     |     |     |
| Glu  | Glu | Arg | Gly | Val | Arg | Ala  | Pro | Ser | Phe | Ala | Gln  | Lys | Pro | Lys |
| 1205 |     |     |     |     |     | 1210 |     |     |     |     | 1215 |     |     |     |
| Val  | Ser | Glu | Asn | Asp | Phe | Glu  | Asp | Leu | Leu | Ser | Asn  | Gln | Gly | Phe |
| 1220 |     |     |     |     |     | 1225 |     |     |     |     | 1230 |     |     |     |
| Ser  | Ser | Arg | Ser | Asp | Lys | Lys  | Gly | Pro | Lys | Thr | Ile  | Ala | Glu | Met |
| 1235 |     |     |     |     |     | 1240 |     |     |     |     | 1245 |     |     |     |
| Arg  | Lys | Gln | Asp | Leu | Ala | Lys  | Asp | Thr | Asp | Pro | Leu  | Lys | Leu | Lys |
| 1250 |     |     |     |     |     | 1255 |     |     |     |     | 1260 |     |     |     |
| Leu  | Leu | Asp | Trp | Ile | Glu | Gly  | Lys | Glu | Arg | Asn | Ile  | Arg | Ala | Leu |
| 1265 |     |     |     |     |     | 1270 |     |     |     |     | 1275 |     |     |     |
| Leu  | Ser | Thr | Leu | His | Thr | Val  | Leu | Trp | Asp | Gly | Glu  | Ser | Arg | Trp |
| 1280 |     |     |     |     |     | 1285 |     |     |     |     | 1290 |     |     |     |
| Thr  | Pro | Val | Gly | Met | Ala | Asp  | Leu | Val | Ala | Pro | Glu  | Gln | Val | Lys |
| 1295 |     |     |     |     |     | 1300 |     |     |     |     | 1305 |     |     |     |
| Lys  | His | Tyr | Arg | Arg | Ala | Val  | Leu | Ala | Val | His | Pro  | Asp | Lys | Ala |
| 1310 |     |     |     |     |     | 1315 |     |     |     |     | 1320 |     |     |     |
| Ala  | Gly | Gln | Pro | Tyr | Glu | Gln  | His | Ala | Lys | Met | Ile  | Phe | Met | Glu |
| 1325 |     |     |     |     |     | 1330 |     |     |     |     | 1335 |     |     |     |

Leu Asn Asp Ala Trp Ser Glu Phe Glu Asn Gln Gly Ser Arg Pro  
 1340 1345 1350

Leu Phe  
 1355

<210> 34  
 <211> 490  
 <212> PRT  
 <213> Homo sapiens

<400> 34  
 Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu  
 1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met  
 20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
 35 40 45

Lys Leu Ser Ala Arg Val Arg Leu His Asp Ser Ile Ser Glu Glu Gly  
 50 55 60

Phe His Tyr Leu Val Phe Asp Leu Val Thr Gly Gly Glu Leu Phe Glu  
 65 70 75 80

Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp Ala Ser His Cys  
 85 90 95

Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val  
 100 105 110

Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala Ser Lys Ser  
 115 120 125

Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val  
 130 135 140

Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr  
 145 150 155 160

Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly Lys Pro Val Asp  
 165 170 175

Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro  
 180 185 190

Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln Gln Ile Lys Ala  
 195 200 205

Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu  
 210 215 220

Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn Pro Ala Lys Arg  
 225 230 235 240

Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile Cys Gln Arg Ser  
 245 250 255

Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Asp Cys Leu Lys  
 260 265 270

Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met  
 275 280 285

Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu Leu Lys Lys Pro  
 290 295 300

Asp Gly Val Lys Lys Arg Lys Ser Ser Ser Ser Val Gln Met Met Glu  
 305 310 315 320

Ser Thr Glu Ser Ser Asn Thr Thr Ile Glu Asp Glu Asp Val Glu Ala  
 325 330 335

Arg Lys Gln Glu Ile Ile Lys Val Thr Glu Gln Leu Ile Glu Ala Ile  
 340 345 350

Asn Asn Gly Asp Phe Glu Ala Tyr Thr Lys Ile Cys Asp Pro Gly Leu  
 355 360 365

Thr Ala Phe Glu Pro Glu Ala Leu Gly Asn Leu Val Glu Gly Met Asp  
 370 375 380

Phe His Arg Phe Tyr Phe Glu Asn Ala Leu Ser Lys Ser Asn Lys Pro  
 385 390 395 400

Ile His Thr Ile Ile Leu Asn Pro His Val His Leu Val Gly Asp Asp  
 405 410 415



Ala Ala Cys Ile Ala Tyr Ile Arg Leu Thr Gln Tyr Met Asp Gly Ser  
 420 425 430

Gly Met Pro Lys Thr Met Gln Ser Glu Glu Thr Arg Val Trp His Arg  
 435 440 445

Arg Asp Gly Lys Trp Gln Asn Val His Phe His Arg Ser Gly Ser Pro  
 450 455 460

Thr Val Pro Ile Lys Pro Pro Cys Ile Pro Asn Gly Lys Glu Asn Phe  
 465 470 475 480

Ser Gly Gly Thr Ser Leu Trp Gln Asn Ile  
 485 490

<210> 35

<211> 344

<212> PRT

<213> Homo sapiens

<400> 35

Met Ala Ser Thr Thr Thr Cys Thr Arg Phe Thr Asp Glu Tyr Gln Leu  
 1 5 10 15

Phe Glu Glu Leu Gly Lys Gly Ala Phe Ser Val Val Arg Arg Cys Met  
 20 25 30

Lys Ile Pro Thr Gly Gln Glu Tyr Ala Ala Lys Ile Ile Asn Thr Lys  
 35 40 45

Lys Leu Ser Ala Arg Val Arg Leu His Asp Ser Ile Ser Glu Glu Gly  
 50 55 60

Phe His Tyr Leu Val Val Asp Leu Val Thr Gly Gly Glu Leu Phe Glu  
 65 70 75 80

Asp Ile Val Ala Arg Glu Tyr Tyr Ser Glu Ala Asp Ala Ser His Cys  
 85 90 95

Ile Gln Gln Ile Leu Glu Ala Val Leu His Cys His Gln Met Gly Val  
 100 105 110

Val His Arg Asp Leu Lys Pro Glu Asn Leu Leu Leu Ala Ser Lys Ser  
 115 120 125

Lys Gly Ala Ala Val Lys Leu Ala Asp Phe Gly Leu Ala Ile Glu Val  
 130 135 140

Gln Gly Asp Gln Gln Ala Trp Phe Gly Phe Ala Gly Thr Pro Gly Tyr  
 145 150 155 160

Leu Ser Pro Glu Val Leu Arg Lys Asp Pro Tyr Gly Lys Pro Val Asp  
 165 170 175

Met Trp Ala Cys Gly Val Ile Leu Tyr Ile Leu Leu Val Gly Tyr Pro  
 180 185 190

Pro Phe Trp Asp Glu Asp Gln His Arg Leu Tyr Gln Gln Ile Lys Ala  
 195 200 205

Gly Ala Tyr Asp Phe Pro Ser Pro Glu Trp Asp Thr Val Thr Pro Glu  
 210 215 220

Ala Lys Asp Leu Ile Asn Lys Met Leu Thr Ile Asn Pro Ala Lys Arg  
 225 230 235 240

Ile Thr Ala Ser Glu Ala Leu Lys His Pro Trp Ile Cys Gln Arg Ser  
 245 250 255

Thr Val Ala Ser Met Met His Arg Gln Glu Thr Val Asp Cys Leu Lys  
 260 265 270

Lys Phe Asn Ala Arg Arg Lys Leu Lys Gly Ala Ile Leu Thr Thr Met  
 275 280 285

Leu Ala Thr Arg Asn Phe Ser Ala Ala Lys Ser Leu Leu Lys Lys Pro  
 290 295 300

Asp Gly Val Lys Glu Ser Thr Glu Ser Ser Asn Thr Thr Ile Glu Asp  
 305 310 315 320

Glu Asp Val Lys Gly Thr Val Ala His Ala Cys Asn Pro Ser Thr Leu  
 325 330 335

Gly Gly Arg Gly Gly Gln Ile Thr  
 340

<210> 36  
 <211> 89  
 <212> PRT  
 <213> Homo sapiens

<400> 36  
 Met Lys Lys Phe Ser Arg Met Pro Lys Ser Glu Gly Gly Ser Gly Gly  
 1 5 10 15

Gly Ala Ala Gly Gly Gly Ala Gly Gly Ala Gly Ala Gly Ala Gly Cys  
 20 25 30

Gly Ser Gly Gly Ser Ser Val Gly Val Arg Val Phe Ala Val Gly Arg  
 35 40 45

His Gln Val Thr Leu Glu Glu Ser Leu Ala Glu Val Ile Gln Met Leu  
 50 55 60

Pro Val Gln Glu Pro Arg Leu Glu Tyr Arg Val Pro Leu Ile Ser Ser  
 65 70 75 80

Gly Arg Arg Arg Leu Arg Arg Arg Cys  
 85

<210> 37  
 <211> 88  
 <212> PRT  
 <213> Homo sapiens

<400> 37  
 Met Lys Lys Phe Ser Arg Met Pro Lys Ser Glu Gly Gly Ser Gly Gly  
 1 5 10 15

Gly Ala Ala Gly Gly Gly Ala Gly Gly Ala Gly Ala Gly Ala Gly Cys  
 20 25 30

Gly Ser Gly Gly Ser Ser Val Gly Val Arg Val Phe Ala Val Gly Arg  
 35 40 45

His Gln Val Thr Leu Glu Glu Ser Leu Ala Glu Gly Thr Gly Ala Arg  
 50 55 60

Gly Gly Ser Asp Arg Gln Val Asp Ser Pro Gln Phe Ser Ser Cys Val  
 65 70 75 80

Leu Thr Val Glu Ser Asp Val His  
 85

<210> 38  
 <211> 137  
 <212> PRT  
 <213> Homo sapiens

<400> 38  
 Met Ser Thr Ala Ser Ala Ala Ser Ser Ser Ser Ser Ser Ser Ala Gly  
 1 5 10 15

Glu Met Ile Glu Ala Pro Ser Gln Val Leu Asn Phe Glu Glu Ile Asp  
 20 25 30

Tyr Lys Glu Ile Glu Val Glu Glu Val Val Gly Arg Gly Ala Phe Gly  
 35 40 45

Val Val Cys Lys Ala Lys Trp Arg Ala Lys Asp Val Ala Ile Lys Gln  
 50 55 60

Ile Glu Ser Glu Ser Glu Arg Lys Ala Phe Ile Val Glu Leu Arg Gln  
 65 70 75 80

Leu Ser Arg Val Asn His Pro Asn Ile Val Lys Leu Tyr Gly Ala Cys  
 85 90 95

Leu Asn Pro Val Cys Leu Val Met Glu Tyr Ala Glu Gly Gly Ser Leu  
 100 105 110

Tyr Asn Val Cys Ala Phe Leu Ser Gln Cys Cys Met Val Leu Asn His  
 115 120 125

Cys His Ile Ile Leu Leu Pro Thr Gln  
 130 135

<210> 39  
 <211> 243  
 <212> PRT  
 <213> Homo sapiens

<400> 39  
 Met Ala Asp Leu Glu Ala Val Leu Ala Asp Val Ser Tyr Leu Met Ala  
 1 5 10 15

Met Glu Lys Ser Lys Ala Thr Pro Ala Ala Arg Ala Ser Lys Lys Ile  
 20 25 30

Leu Leu Pro Glu Pro Ser Ile Arg Ser Val Met Gln Lys Tyr Leu Glu  
 35 40 45

Asp Arg Gly Glu Val Thr Phe Glu Lys Ile Phe Ser Gln Lys Leu Gly  
 50 55 60

Tyr Leu Leu Phe Arg Asp Phe Cys Leu Asn His Leu Glu Glu Ala Arg  
 65 70 75 80

Pro Leu Val Glu Phe Tyr Glu Glu Ile Lys Lys Tyr Glu Lys Leu Glu  
 85 90 95

Thr Glu Glu Glu Arg Val Ala Arg Ser Arg Glu Ile Phe Asp Ser Tyr  
 100 105 110

Ile Met Lys Glu Leu Leu Ala Cys Ser His Pro Phe Ser Lys Ser Ala  
 115 120 125

Thr Glu His Val Gln Gly His Leu Gly Lys Lys Gln Val Pro Pro Asp  
 130 135 140

Leu Phe Gln Pro Tyr Ile Glu Glu Ile Cys Gln Asn Leu Arg Gly Asp  
 145 150 155 160

Val Phe Gln Lys Phe Ile Glu Ser Asp Lys Phe Thr Arg Phe Cys Gln  
 165 170 175

Trp Lys Asn Val Glu Leu Asn Ile His Val Ser Gly Leu Gly Trp Gly  
 180 185 190

Met Glu Ser His Ala Pro Cys Cys Ser Ser Pro Gly Ser Trp Ala Cys  
 195 200 205

Gly Leu Ala Gly Arg Gly Arg Ser Gly Asp Val Cys Pro Leu Ala Pro  
 210 215 220

Arg Ala Val Ala Met Gly Val Arg Ala Gly Ile Pro Ala Trp Gly Gly  
 225 230 235 240

Arg Ser Arg

&lt;210&gt; 40

&lt;211&gt; 463

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 40

Met Arg Arg Pro Arg Gly Glu Pro Gly Pro Arg Ala Pro Arg Pro Thr  
 1 5 10 15

Glu Gly Ala Thr Cys Ala Gly Pro Gly Glu Ser Trp Ser Pro Ser Pro  
 20 25 30

Asn Ser Met Leu Arg Val Leu Leu Ser Ala Gln Thr Ser Pro Ala Arg  
 35 40 45

Leu Ser Gly Leu Leu Leu Ile Pro Pro Val Gln Pro Cys Cys Leu Gly  
 50 55 60

Pro Ser Lys Trp Gly Asp Arg Pro Val Gly Gly Gly Pro Ser Ala Gly  
 65 70 75 80

Pro Val Gln Gly Leu Gln Arg Leu Leu Glu Gln Ala Lys Ser Pro Gly  
 85 90 95

Glu Leu Leu Arg Trp Leu Gly Gln Asn Pro Ser Lys Val Arg Ala His  
 100 105 110

His Tyr Ser Val Ala Leu Arg Arg Leu Gly Gln Leu Leu Gly Ser Arg  
 115 120 125

Pro Arg Pro Pro Pro Val Glu Gln Val Thr Leu Gln Asp Leu Ser Gln  
 130 135 140

Leu Ile Ile Arg Asn Cys Pro Ser Phe Asp Ile His Thr Ile His Val  
 145 150 155 160

Cys Leu His Leu Ala Val Leu Leu Gly Phe Pro Ser Asp Gly Pro Leu  
 165 170 175

Val Cys Ala Leu Glu Gln Glu Arg Arg Leu Arg Leu Pro Pro Lys Pro  
 180 185 190

Pro Pro Pro Leu Gln Pro Leu Leu Arg Glu Ala Arg Pro Glu Glu Leu  
 195 200 205

Thr Pro His Val Met Val Leu Leu Ala Gln His Leu Ala Arg His Arg  
 210 215 220

Leu Arg Glu Pro Gln Leu Leu Glu Ala Ile Thr His Phe Leu Val Val  
 225 230 235 240

Gln Glu Thr Gln Leu Ser Ser Lys Val Val Gln Lys Leu Val Leu Pro  
 245 250 255

Phe Gly Arg Leu Asn Tyr Leu Pro Leu Glu Gln Gln Phe Met Pro Cys  
 260 265 270

Leu Glu Arg Ile Leu Ala Arg Glu Ala Gly Val Ala Pro Leu Ala Thr  
 275 280 285

Val Asn Ile Leu Met Ser Leu Cys Gln Leu Arg Cys Leu Pro Phe Arg  
 290 295 300

Ala Leu His Phe Val Phe Ser Pro Gly Phe Ile Asn Tyr Ile Ser Gly  
 305 310 315 320

Thr Pro His Ala Leu Ile Val Arg Arg Tyr Leu Ser Leu Leu Asp Thr  
 325 330 335

Ala Val Glu Leu Glu Leu Pro Gly Tyr Arg Gly Pro Arg Leu Pro Arg  
 340 345 350

Arg Gln Gln Val Pro Ile Phe Pro Gln Pro Leu Ile Thr Asp Arg Ala  
 355 360 365

Arg Cys Lys Tyr Ser His Lys Asp Ile Val Ala Glu Gly Leu Arg Gln  
 370 375 380

Leu Leu Gly Glu Glu Lys Tyr Arg Gln Asp Leu Thr Val Pro Pro Gly  
 385 390 395 400

Tyr Cys Thr Gly Glu Gln Gly Ala Gly Gly Arg Pro Gly Glu Thr Glu  
 405 410 415

Pro Trp Leu Arg Pro Pro Ala Leu Leu Pro Ser Arg Leu Pro Ala Val  
 420 425 430

Arg Gln Gln Leu Trp Cys Cys Ala Ser Arg Glu Asp Pro Gly Pro Leu  
 435 440 445

Pro Ala Ile Pro Thr Lys Val Leu Pro Thr Gly Pro Gly Cys Leu  
 450 455 460

<210> 41  
 <211> 184  
 <212> PRT  
 <213> Homo sapiens

<400> 41  
 Met Arg Leu Ala Arg Leu Leu Arg Gly Ala Ala Leu Ala Gly Pro Gly  
 1 5 10 15

Pro Gly Leu Arg Ala Ala Gly Phe Ser Arg Ser Phe Ser Ser Asp Ser  
 20 25 30

Gly Ser Ser Pro Ala Ser Glu Arg Gly Val Pro Gly Gln Val Asp Phe  
 35 40 45

Tyr Ala Arg Phe Ser Pro Ser Pro Leu Ser Met Lys Gln Phe Leu Asp  
 50 55 60

Phe Gly Ser Val Asn Ala Cys Glu Lys Thr Ser Phe Met Phe Leu Arg  
 65 70 75 80

Gln Glu Leu Pro Val Arg Leu Ala Asn Ile Met Lys Glu Ile Ser Leu  
 85 90 95

Leu Pro Asp Asn Leu Leu Arg Thr Pro Ser Val Gln Leu Val Gln Ser  
 100 105 110

Trp Tyr Ile Gln Ser Leu Gln Glu Leu Leu Asp Phe Lys Asp Lys Ser  
 115 120 125

Ala Glu Asp Ala Lys Ala Ile Tyr Glu Arg Pro Arg Arg Thr Trp Leu  
 130 135 140

Gln Val Ser Ser Leu Cys Cys Met Ala Cys Lys Met Ile Phe Ile Val  
 145 150 155 160

Trp Trp Lys Arg Gln Arg Lys Ser Ile Ser Ser Lys Thr His Trp Lys  
 165 170 175

His Lys Ser Lys Leu Gln Cys Thr  
 180



<210> 42  
 <211> 386  
 <212> PRT  
 <213> Homo sapiens

<400> 42  
 Met Ser Ser Leu Gly Ala Ser Phe Val Gln Ile Lys Phe Asp Asp Leu  
 1 5 10 15

Gln Phe Phe Glu Asn Cys Gly Gly Gly Ser Phe Gly Ser Val Tyr Arg  
 20 25 30

Ala Lys Trp Ile Ser Gln Asp Lys Glu Val Ala Val Lys Lys Leu Leu  
 35 40 45

Lys Ile Glu Lys Glu Ala Glu Ile Leu Ser Val Leu Ser His Arg Asn  
 50 55 60

Ile Ile Gln Phe Tyr Gly Val Ile Leu Glu Pro Pro Asn Tyr Gly Ile  
 65 70 75 80

Val Thr Glu Tyr Ala Ser Leu Gly Ser Leu Tyr Asp Tyr Ile Asn Ser  
 85 90 95

Asn Arg Ser Glu Glu Met Asp Met Asp His Ile Met Thr Trp Ala Thr  
 100 105 110

Asp Val Ala Lys Gly Met His Tyr Leu His Met Glu Ala Pro Val Lys  
 115 120 125

Val Ile His Arg Asp Leu Lys Ser Arg Asn Val Val Ile Ala Ala Asp  
 130 135 140

Gly Val Leu Lys Ile Cys Asp Phe Gly Ala Ser Arg Leu His Asn His  
 145 150 155 160

Thr Thr His Met Ser Leu Val Gly Thr Phe Pro Trp Met Ala Pro Glu  
 165 170 175

Val Ile Gln Ser Leu Pro Val Ser Glu Thr Cys Asp Thr Tyr Ser Tyr  
 180 185 190

Gly Val Val Leu Trp Glu Met Leu Thr Arg Glu Val Pro Phe Lys Gly  
 195 200 205

Leu Glu Gly Leu Gln Val Ala Trp Leu Val Val Glu Lys Asn Glu Arg  
 210 215 220

Leu Lys Lys Leu Glu Arg Asp Leu Ser Phe Lys Glu Gln Glu Leu Lys  
 225 230 235 240

Glu Arg Glu Arg Arg Leu Lys Met Trp Glu Gln Lys Leu Thr Glu Gln  
 245 250 255

Ser Asn Thr Pro Leu Leu Leu Pro Leu Val Ala Arg Met Ser Glu Glu  
 260 265 270

Ser Tyr Phe Glu Ser Lys Thr Glu Glu Ser Asn Ser Ala Glu Met Ser  
 275 280 285

Cys Gln Ile Thr Ala Thr Ser Asn Gly Glu Gly His Gly Met Asn Pro  
 290 295 300

Ser Leu Gln Ala Met Met Leu Met Gly Phe Gly Asp Ile Phe Ser Met  
 305 310 315 320

Asn Lys Ala Gly Ala Val Met His Ser Gly Met Gln Ile Asn Met Gln  
 325 330 335

Ala Lys Gln Asn Ser Ser Lys Thr Thr Ser Lys Arg Arg Gly Lys Lys  
 340 345 350

Val Asn Met Ala Leu Gly Phe Ser Asp Phe Asp Leu Ser Glu Gly Asp  
 355 360 365

Asp Asp Asp Asp Asp Asp Gly Glu Glu Glu Asp Asn Asp Met Asp Asn  
 370 375 380

Ser Glu  
 385

<210> 43  
 <211> 152  
 <212> PRT  
 <213> Homo sapiens

<400> 43  
 Met Asp Gln Tyr Cys Ile Leu Gly Arg Ile Gly Glu Gly Ala His Gly  
 1 5 10 15

Ile Val Phe Lys Ala Lys His Val Glu Thr Gly Glu Ile Val Ala Leu  
 20 25 30

Lys Lys Val Ala Leu Arg Arg Leu Glu Asp Gly Phe Pro Asn Gln Ala  
 35 40 45

Leu Arg Glu Ile Lys Ala Leu Gln Glu Met Glu Asp Asn Gln Tyr Val  
 50 55 60

Val Gln Leu Lys Ala Val Phe Pro His Gly Gly Gly Phe Val Leu Ala  
 65 70 75 80

Phe Glu Phe Met Leu Ser Asp Leu Ala Glu Val Val Arg His Ala Gln  
 85 90 95

Arg Pro Leu Ala Gln Ala Gln Val Lys Ser Tyr Leu Gln Met Leu Leu  
 100 105 110

Lys Gly Val Ala Phe Cys His Ala Asn Asn Ile Val His Arg Asp Leu  
 115 120 125

Pro Pro Arg Pro Ile Gln Gly Pro Pro Thr Ser Met Thr Ser Thr Trp  
 130 135 140

Thr Gly Leu Leu Arg Ser Arg Cys  
 145 150

<210> 44  
 <211> 1916  
 <212> DNA  
 <213> Homo sapiens

<400> 44  
 gttaggccag gaggaccatg tgaatggggc cagagggctc ccgggctggg caggaccatg 60  
 ggctgtggct gcagctcaca cccggaagat gactggatgg aaaacatcga tgtgtgtgag 120  
 aactgccatt atcccatagt ccactggat ggcaagggca cgctgctcat ccgaaatggc 180  
 tctgagacaa cctggttatc gctctgcaca gctatgagcc ctctcacgac ggagatctgg 240  
 gctttgagaa gggggaacag ctccgcatcc tggagcagag cggcgagtgg tggaaggcgc 300  
 agtccctgac cacgggccag gaaggcttca tccccttcaa ttttgtggcc aaagcgaaca 360  
 gcctggagcc cgaaccctgg ttcttcaaga acctgagccg caaggacgcg gagcggcagc 420

|            |            |            |             |            |            |      |
|------------|------------|------------|-------------|------------|------------|------|
| tcctggcgcc | cggaacact  | cacggctcct | tcctcatccg  | ggagagcgag | agcaccgcgg | 480  |
| gacgtttttc | actgtcggtc | cgggacttcg | accagaacca  | gggagaggtg | gtgaaacatt | 540  |
| acaagatccg | taatctggac | aacggtggct | tctacatctc  | ccctcgaatc | acttttcccg | 600  |
| gcctgcatga | actggtccgc | cattacacca | atgcttcaga  | tgggctgtgc | acacggttga | 660  |
| gccgcccctg | ccagaccag  | aagccccaga | agcgtggtg   | ggaggacgag | tgggaggttc | 720  |
| ccagggagac | gctgaagctg | gtggagcggc | tgggggctgg  | acagttcggg | gaggtgtgga | 780  |
| tggggacta  | caacgggcac | acgaaggtgg | cgggtgaagag | cctgaagcag | ggcagcatgt | 840  |
| ccccggacgc | cttcctggcc | gaggccaacc | tcatgaagca  | gctgcaacac | cagcggctgg | 900  |
| ttcggctcta | cgctgtggtc | accaggagc  | ccatctacat  | catcactgaa | tacatggaga | 960  |
| atgggagtct | agtggatttt | ctcaagacc  | cttcaggcat  | caagttgacc | atcaacaaac | 1020 |
| tcctggacat | ggcagcccaa | ttgcagaagg | catggcattc  | attgaagagc | ggaattatat | 1080 |
| tcatcgtgac | cttcgggctg | ccaacattct | ggtgtctgac  | accctgagct | gcaagattgc | 1140 |
| agacttgggt | ctagcacgcc | tcattgagga | caacgagtac  | acagccaggg | agggggccaa | 1200 |
| gtttcccatt | aagtggacag | cgccagaagc | cattaactac  | gggacattca | ccatcaagtc | 1260 |
| agatgtgtgg | tcttttggga | tcctgctgac | ggaaattgtc  | accacgggcc | gcatccctta | 1320 |
| cccagggatg | accaaccgg  | aggtgattca | gaacctggag  | cgaggctacc | gcatggtgcg | 1380 |
| ccctgacaac | tgtccagagg | agctgtacca | actcatgagg  | ctgtgctgga | aggagcgccc | 1440 |
| agaggaccgg | cccacctttg | actacctgcg | cagtgtgctg  | gaggacttct | tcacggccac | 1500 |
| agagggccag | taccagcctc | agccttgaga | ggccttgaga  | ggccctgggg | ttctccccct | 1560 |
| ttctctccag | cctgacttgg | ggagatggag | ttcttgtgcc  | atagtcacat | ggcctatgca | 1620 |
| catatggact | ctgcacatga | atcccacca  | catgtgacac  | atatgcacct | tgtgtctgta | 1680 |
| cacgtgtcct | gtagttgcgt | ggactctgca | catgtcttgt  | acatgtgtag | cctgtgcatg | 1740 |
| tatgtcttgg | acactgtaca | aggtaccct  | ttctggctct  | ccatttcct  | gagaccacag | 1800 |
| agagagggga | gaagcctggg | attgacagaa | gcttctgccc  | acctactttt | ctttcctcag | 1860 |
| atcatccaga | agttcctcaa | gggccaggac | tttatcta    | acctctgtgt | gctcct     | 1916 |

<210> 45  
 <211> 926  
 <212> DNA  
 <213> Homo sapiens

|          |            |            |            |            |            |            |    |
|----------|------------|------------|------------|------------|------------|------------|----|
| <400> 45 | tctaccgggt | tcaagcatgg | ctgaccaggc | gcccttcgac | acggacgtca | acaccctgac | 60 |
|----------|------------|------------|------------|------------|------------|------------|----|

|  |     |
|--|-----|
| ccgcttcgtc atggaggagg gcaggaaggc ccgcggcacg ggcgagttga cccagctgct  | 120 |
| caactcgctc tgcacagcag tcaaagccat ctcttcggcg gtgcgcaagg cgggcatcgc  | 180 |
| gcacctctat ggcattgctg gttctaccaa cgtgacaggt gatcaagtta agaagctgga  | 240 |
| cgtcctctcc aacgacctgg ttatgaacat gttaaagtca tcctttgcc a cgtgtgttct | 300 |
| cgtgtcagaa gaagataaac acgccatcat agtggaaaccg gagaaaaggg gtaaatatgt | 360 |
| ggtctgtttt gatccccttg atggatcttc caacatcgat tgccttgtgt ccgttggaac  | 420 |
| catttttggc atctatagaa agaaatcaac tgatgagcct tctgagaagg atgctctgca  | 480 |
| accaggccgg aacctggtgg cagccggcta cgcactgtat ggcagtgcc ccatgctggt   | 540 |
| ccttgccatg gactgtgggg tcaactgctt catgctggac ccggataatt cagctcctta  | 600 |
| tggggcccggt tatgtgggct ccatggtggc tgatgttcat cgcactctgg tctacggagg | 660 |
| gatatttctg taccgcgcta acaagaagag ccccaatgga aagctgagac tgctgtacga  | 720 |
| atgcaacccc atggcctacg tcatggagaa ggctggggga atggccacca ctgggaagga  | 780 |
| ggccgtgtta gacgtcattc ccacagacat tcaccagagg gcgccggtga tcttggggtc  | 840 |
| ccccgacgac gtgctcgagt tcctgaagggt gtatgagaag cactctgccc agtgagcacc | 900 |
| tgccctgcct gcatctggag aattga                                       | 926 |

&lt;210&gt; 46

&lt;211&gt; 1382

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 46

|  |     |
|--|-----|
| tgatggcgtc cccacgggaa ttgacacaga accccctgaa gaagatctgg atgccataca  | 60  |
| gcaatgggcg gcccgctctg cacgcttgcc agcgcggtgt gtgcatgacc aactgcccaa  | 120 |
| ctctcattgt catggtgggc ctgcccgcc a ggggcaagac ctacatctcc aagaagctga | 180 |
| ctcgatacct gaactggatt ggtgtgcca ctcgggagtt caatgttggc cagtatcgcc   | 240 |
| gggacgtggt caagacctac aaatcttttg aattttttct ccccgacaat gaagagggcc  | 300 |
| tgaaaatcag gaagcagtgt gccctggcag ccctccgtga cgtccggcgg ttccttagtg  | 360 |
| aggagggggg acatgtggcg gtttttgatg ccacaaacac caccgagaa cggagagcga   | 420 |
| ccatcttta ttttgagaa cagaatggct acaagacctt ttttgtcgag tccatctgtg    | 480 |
| tggatcctga ggtcatagct gccaacatcg tgcaagtga actgggcagc cctgactatg   | 540 |
| tcaaccgcga cagtgatgag gctacggagg acttcatgag gcgcattgag tgctatgaga  | 600 |

actcctacga gtcgctagat gaggacctgg atagggacct gtcctatatc aagatcatgg 660  
 atgtggggcca gagctacgtg gtgaaccgtg tggctgacca catccagagc cgcacgtat 720  
 attacctcat gaacatccac gtgaccccc gctccatcta cctctgccgg cacggggaga 780  
 gcgagctcaa cctcaagggc cggattggcg gggacccagg actgtcccct cggggcaggg 840  
 agtttgccaa gagtctagcc cagttcatca gtgacaaaa tatcaaggat ctgaaggctct 900  
 ggacaagcca gatgaagagg acaatccaga cggctgaggc actgggtgtg ccctatgaac 960  
 agtggaaggt cctcaacgag atcgatgcgt cctacgagga cctggtccag agactggagc 1020  
 ctgtcatcat ggagctggag aggcaagaga atgtgctggt catctgccac caggctgtga 1080  
 tgcgctgcct gctggcctac ttcctcgaca aggcagcaga acagctgcc tacctcaagt 1140  
 gtccgctgca cacagtccctg aagctgactc ctgtggcata tggttgtaaa gtggagtcca 1200  
 tattcctgaa cgtggctgct gtgaacacgc accgggacag gcctcagaac gtggacatct 1260  
 caagacctcc agaggaagcc cttgtcacgg tgccctgctca ccagtgacca tgttcatcca 1320  
 ctgtgaccac taggcaggca ctgctctctg cagaggggggt cattccaggc cctccagtgt 1380  
 ga 1382

<210> 47  
 <211> 1678  
 <212> DNA  
 <213> Homo sapiens

<400> 47  
 tatggccgca ttgtaccgcc ctggcctgcg gcttaactgg catgggctga gcccttggg 60  
 ctggccatca tgccgtagca tccagaccct gcgagtgcct agtgagatc tgggccagct 120  
 tcccactggc attcgagatt ttgtagagca cagtgcgccg ctgtgccaac cagagggcat 180  
 ccacatctgt gatggaactg aggctgagaa tactgccaca ctgacctgc tggagcagca 240  
 gggcctcatc cgaaagctcc ccaagtacaa taactgctgg ctggcccgca cagaccccaa 300  
 ggatgtggca cgagtagaga gcaagacggt gattgtaact ccttctcagc gggacacggt 360  
 accactcccg cctggtgggg cccgtgggca gctgggcaac tggatgtccc cagctgattt 420  
 ccagcgagct gtggatgaga ggtttccagg ctgcatgcag ggccgcacca tgtatgtgct 480  
 tccattcagc atgggtcctg tgggctcccc gctgtccgcg atcggggtgc agctcactga 540  
 ctcagcctat gtggtggcaa gcatgcgtat tatgaccgca ctggggacac ctgtgcttca 600  
 ggccctggga gatggtgact ttgtcaagtg tctgcactcc gtgggacagc ccctgacagg 660  
 acaagatcct gggcatcacc agccctgcag ggaagaagcg ctatgtggca gccgccttcc 720

|            |             |             |             |            |            |      |
|------------|-------------|-------------|-------------|------------|------------|------|
| ctagtgcctg | tggcaagacc  | aacctggcta  | tgatgcggcc  | tgactgcca  | ggctggaaag | 780  |
| tggagtgtgt | gggggatgat  | attgcttgga  | tgaggtttga  | cagtgaaggt | cgactccggg | 840  |
| ccatcaaccc | tgagaacggc  | ttctttgggg  | ttgcccctgg  | tacctctgcc | accaccaatc | 900  |
| ccaacgccat | ggctacaatc  | cagagtaaca  | ctatTTTTtac | caatgtggct | gagaccagtg | 960  |
| atggtggcgt | gtactgggag  | ggcattgacc  | agcctcttcc  | acctggtgtt | actgtgacct | 1020 |
| cctggctggg | caaaccttgg  | aaacctgggtg | acaaggagcc  | ctgtgcacat | cccaactctc | 1080 |
| gattttgtgc | cccggctcgc  | cagtgcacca  | tcatggaccc  | agcctgggag | gccccagagg | 1140 |
| gtgtcccat  | tgacgccatc  | atctttgggtg | gccgcagacc  | caaagggag  | atcatcatgc | 1200 |
| acgacccatt | tgccatgcgg  | ccctTTTTtg  | gctacaactt  | cgggcactac | ctggaacact | 1260 |
| ggctgagcat | ggaagggcgc  | aagggggccc  | agctgccccg  | tatcttccat | gtcaactggt | 1320 |
| tccggcgtga | cgaggcaggg  | cacttctctgt | ggccaggctt  | tggggagaat | gctcgggtgc | 1380 |
| tagactggat | ctgccggcgg  | ttagaggggg  | aggacagtgc  | ccgagagaca | cccattgggc | 1440 |
| tggtgccaaa | ggaaggagcc  | ttggatctca  | gcggcctcag  | agctatagac | accactcagc | 1500 |
| tgttctccct | ccccaaaggac | ttctgggaac  | aggaggttcg  | tgacattcgg | agctacctga | 1560 |
| cagagcaggt | caaccaggat  | ctgccccaaag | aggtgttggc  | tgagcttgag | gccctggaga | 1620 |
| gacgtgtgca | caaaatgtga  | cctgaggccc  | tagtctagca  | agaggacata | gcacccta   | 1678 |

<210> 48  
 <211> 895  
 <212> DNA  
 <213> Homo sapiens

|          |             |            |            |            |             |            |     |
|----------|-------------|------------|------------|------------|-------------|------------|-----|
| <400> 48 | tctgtaaattg | caagagaacc | gagtgtggat | aattagcgat | ggaagaaaaa  | acctctagaa | 60  |
|          | taaaagcatc  | cataccccag | ttaccaatt  | ccccacaat  | ggtgatcatg  | gtgggtttac | 120 |
|          | cagctcgagg  | caagacctat | atctccacaa | agctcacacg | atatctcaac  | tggataggaa | 180 |
|          | caccaactaa  | agtgtttaat | ttaggccagt | atcgacgaga | ggcagtgagc  | tacaagaact | 240 |
|          | atgaattctt  | tcttccagac | aacatggaag | ccctgcaaat | caggaagcag  | tgcgccctgg | 300 |
|          | cagccctgaa  | ggatgttcac | aactatctca | gccatgagga | aggatcatgtt | gcggtttttg | 360 |
|          | atgccaccaa  | cactaccaga | gaacgacggg | cactgatcct | gcagtttgca  | aaagaacatg | 420 |
|          | gttacaaggt  | gtttttcatt | gagtccattt | gtaatgaccc | tggcataatt  | gcagaaaaca | 480 |
|          | tcaggcaagt  | gaaacttggc | agccctgatt | atatagactg | tgaccgggaa  | aaggttctgg | 540 |

|             |            |             |            |            |             |     |
|-------------|------------|-------------|------------|------------|-------------|-----|
| aagacttttct | aaagagaatt | gagtgtctatg | aggtcaacta | ccaacccttg | gatgaggaac  | 600 |
| tggacagatc  | ttcgacgtgg | gcacacgcta  | catggtgaac | cgagtgcagg | atcacatcca  | 660 |
| gagccgcaca  | gtctactacc | tcatgaatat  | ccatgtcaca | cctcgctcca | tctacctttg  | 720 |
| ccgacatggc  | gagagtgaac | tcaacatcag  | aggccgcata | ggaggtgact | ctggcctctc  | 780 |
| agttcgcggc  | aagcagtatg | cctatgccct  | ggccaacttc | attcagtccc | agggcatacag | 840 |
| ctccctgaag  | gtgtggacca | gtcacatgaa  | gaggaccata | cagacagctg | aggcc       | 895 |

&lt;210&gt; 49

&lt;211&gt; 1294

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 49

|            |            |            |             |             |             |      |
|------------|------------|------------|-------------|-------------|-------------|------|
| tctgtaaatg | caagagaacc | gagtgttggg | taattagcga  | tggaagaaaa  | aacctctaga  | 60   |
| ataaaagtgt | ttaatttagg | ccagtatcga | cgagaggcag  | tgagctacaa  | gaactatgaa  | 120  |
| ttctttcttc | cagacaacat | ggaagccctg | caaatacagga | agcagtgcgc  | cctggcagcc  | 180  |
| ctgaaggatg | ttcacaacta | tctcagccat | gaggaaggtc  | atgttgcggt  | ttttgatgcc  | 240  |
| accaacacta | ccagagaacg | acggctactg | atcctgcagt  | ttgcaaaaga  | acatgggttac | 300  |
| aaggtgtttt | tcattgagtc | catttgtaat | gaccctggca  | taattgcaga  | aaacatacagg | 360  |
| caagtgaaac | ttggcagccc | tgattatata | gactgtgacc  | gggaaaagg   | tctggaagac  | 420  |
| tttctaaaga | gaattgagtg | ctatgaggtc | aactaccaac  | ccttggtatga | ggaactggac  | 480  |
| agccacctgt | cctacatcaa | gatcttcgac | gtgggcacac  | gctacatggt  | gaaccgagtg  | 540  |
| caggatcaca | tccagagccg | cacagtctac | tacctcatga  | atatccatgt  | cacacctcgc  | 600  |
| tccatctacc | tttgccgaca | tggcgagagt | gaactcaaca  | tcagaggccg  | catcgagggt  | 660  |
| gactctggcc | tctcagttcg | cggcaagcag | tatgcctatg  | ccctggccaa  | cttcattcag  | 720  |
| tcccagggca | tcagctccct | gaaggtgtgg | accagtcaca  | tgaagaggac  | catccagaca  | 780  |
| gctgaggccc | tgggtgtccc | ctatgagcag | tgggaaggccc | tgaatgagat  | tgatgcgggt  | 840  |
| gtctgtgagg | agatgacct  | tgaagaaatc | caggaacatt  | accctgaaga  | atttgcaactg | 900  |
| cgagaccaag | ataaatatcg | ctaccgctat | cccaagggag  | agtcctatga  | ggatctgggt  | 960  |
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| caccaggctg | tcattgcggg | cctcctggcc | tatttcctgg  | ataaaagttc  | agatgagctt  | 1080 |
| ccatatctca | agtgcctctc | gcacacagtg | ctcaaactca  | ctcctgtggc  | ttatggctgc  | 1140 |
| aaagtggaat | ccatctacct | gaatgtggag | accgtgaaca  | cacaccggga  | gaagcctgag  | 1200 |



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<213> Homo sapiens

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 gcgg 1204

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 <211> 1859  
 <212> DNA  
 <213> Homo sapiens

<400> 52  
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| tggaggaggg  | agatggtggc  | ccagagccta | ctagaaacgg | tgtggacccc | ccaccacggg  | 180  |
| ccagagctgc  | ctctgtgatc  | cctggcagta | cttcaagact | gctcccagcc | cggcctagcc  | 240  |
| tctcagccag  | gaagctttcc  | ctacaggagc | ggccagcagg | aagctatctg | gaggcgcagg  | 300  |
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| ccatcgagtc  | ccaccacgtg  | gccatctcag | atgcagagga | ctgcgtgcag | ctgaaccagt  | 420  |
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| agatcgccga  | ctttggcgtc  | agcaaccagt | ttgaggggaa | cgacgctcag | ctgtccagca  | 1080 |
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| gcaagagccc  | agagctcccc  | ggcgtccagg | aagacgaggg | tgcatcctga | gccccctgcat | 1680 |
| gcaccaggg   | ccaccggca   | gcacactcat | cccgcgcctc | cagaggccca | cccctcatgc  | 1740 |
| aacagccgcc  | cccgagggca  | gggggctggg | gactgcagcc | ccactcccg  | ccctcccca   | 1800 |

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<210> 53

<211> 1695

<212> DNA

<213> Homo sapiens

<400> 53

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caaaagcaga acggaatatt ctggaggaag taaagcatcc cttcatcgtg gattttaattt 300

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| aatgtcatta catagaacac ttcagacaca ggaaaaataa acgtggattt taaaaaatca  | 1560 |
| atcaatggtg caaaaaaaaaa cttaaagcaa atagtattgc tgaactctta ggcacatcaa | 1620 |
| ttaattgatt cctcgcgaca tcttctcaac cttatcaagg attttcatgt tgatgactcg  | 1680 |
| aaactgacag tatta   | 1695 |

&lt;210&gt; 54

&lt;211&gt; 3891

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 54

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| cgactcccct gcaaaaagtc tgggtggacat cgacctctcc tccctgcggg atcctgctgg | 120  |
| gatttttgag ctggtggaag tggttggaaa tggcacctat ggacaagtct ataagggctg  | 180  |
| acatgttaaa acgggtcagt tggcagccat caaagttatg gatgtcactg aggatgaaga  | 240  |
| ggaagaaatc aaactggaga taaatatgct aaagaaatac tctcatcaca gaaacattgc  | 300  |
| aacatattat ggtgctttca tcaaaaagag ccctccagga catgatgacc aactctggct  | 360  |
| tggtatggag ttctgtgggg ctgggtccat tacagacctt gtgaagaaca ccaaaggga   | 420  |
| cacactcaaa gaagactgga tcgcttacat ctccagagaa atcctgaggg gactggcaca  | 480  |
| tcttcacatt catcatgtga ttcaccggga tatcaagggc cagaatgtgt tgctgactga  | 540  |
| gaatgcagag gtgaaacttg ttgactttgg tgtgagtgtc cagctggacg ggactgtggg  | 600  |
| gcggagaaat acgttcatag gcactcccta ctggatggct cctgaggcca tcgcctgtga  | 660  |
| tgagaacca gatgccacct atgattacag aagtgatctt tggctctgtg gcattacagc   | 720  |
| cattgagatg ggggaagggtg ctccccctct ctgtgacatg catccaatga gagcactggt | 780  |
| tctcattccc agaaaccctc ctccccggct gaagtcaaaa aaatggtcga agaagttttt  | 840  |
| tagttttata gaaggggtgcc tggatgaaga ttacatgcag cggccctcta cagagcagct | 900  |
| tttgaaacat cctttttataa gggatcagcc aaatgaaagg caagttagaa tccagcttaa | 960  |
| ggatcatata gatcgtacca ggaagaagag aggcgagaaa gatgaaactg agtatgagta  | 1020 |
| cagtgggagt gaggaagaag aggaggaagt gcctgaacag gaaggagagc caagttccat  | 1080 |
| tgtgaacgtg cctgggtgagt ctactcttcg ccgagatttc ctgagactgc agcaggagaa | 1140 |
| caaggaacgt tccgaggctc ttcggagaca acagttacta caggagcaac agctccggga  | 1200 |
| gcaggaagaa tataaaaggc aactgctggc agagagacag aagcggattg agcagcagaa  | 1260 |

|            |            |            |            |             |             |      |
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| ggaacgtgaa | cagcgaagga | gagaacaaga | agaaaagagg | cgtctagagg  | agttggagag  | 1380 |
| aaggcgcaaa | gaagaagagg | agaggagaca | ggcagaagaa | gaaaagagga  | gagttgaaag  | 1440 |
| agaacaggag | tatatcaggc | gacagctaga | agaggagcag | cggcacttgg  | aagtccttca  | 1500 |
| gcagcagctg | ctccaggagc | aggccatggt | actgcatgac | cataggaggc  | cgcacccgca  | 1560 |
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| atctcgctcc | cctgttctgt | ccgctcgaga | ttccccactg | cagggcagtg  | ggcagcagaa  | 1740 |
| tagccaggca | ggacagagaa | actccaccag | cagtattgag | cccaggcttc  | tgtgggagag  | 1800 |
| agtggagaag | ctgatgccca | gacctggcag | tggcagctcc | tcaggggtcca | gcaactcagg  | 1860 |
| atcccgccc  | gggtctcacc | ctgggtctca | gagtggctcc | ggggaacgct  | tcagagttag  | 1920 |
| atcatcatcc | aagtctgaag | gctctccatc | tcagcgctg  | gaaaatgcag  | tgaaaaaacc  | 1980 |
| tgaagataaa | aaggaagttt | tcagaccctt | caagcctgct | gatctgaccg  | cactggccaa  | 2040 |
| agagcttcga | gcagtggaag | atgtacggcc | acctcacaaa | gtaacggact  | actcctcatc  | 2100 |
| cagtgaggag | ccggggacga | cggatgagga | ggacgacgat | gtggagcagg  | aaggggctga  | 2160 |
| cgagtccacc | tcaggaccag | aggacaccag | agcagcgctc | tctctgaatt  | tgagcaatgg  | 2220 |
| tgaaacggaa | tctgtgaaaa | ccatgattgt | ccatgatgat | gtagaaagtg  | agccggccat  | 2280 |
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| acccaccatg | tccccacaga | caccccagga | caagctcact | gctaatagaga | ctcagtcgc   | 2520 |
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| gaggtttaac | tctgagattc | tgtgtgctgc | cttatgggga | gtgaatttgc  | tagtgggtac  | 2820 |
| agagagtggc | ctgatgctgc | tggacagaag | tggccaaggg | aaggtctatc  | ctcttatcaa  | 2880 |
| ccgaagacga | tttcaacaaa | tggacgtact | tgagggcttg | aatgtcttgg  | tgacaatatc  | 2940 |
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|            |            |            |            |            |             |      |
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| caatgatcca | gaagttgaga | agaagcaggg | atggacaacc | gtaggggatt | tggaaggatg  | 3060 |
| tgtacattat | aaagttgtaa | aatatgaaag | aatcaaattt | ctggtgattg | ctttgaagag  | 3120 |
| ttctgtggaa | gtctatgcgt | gggcacccaa | gccatatcac | aaatttatgg | cctttaagtc  | 3180 |
| atttgagaaa | ttggtacata | agccattact | ggtggatctc | actggtgagg | aaggccagag  | 3240 |
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| agtctatgac | atttatctac | caacacatat | ccagtgtagc | atcaaaccct | atgcaatcat  | 3360 |
| catcctcccc | aatacagatg | gaatggagct | tctggtgtgc | tatgaagatg | aggggggttta | 3420 |
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| aactggagct | cggagctgca | ccgagggcaa | ccaggacagc | tgtgtgtgca | gacctcatgt  | 3840 |
| gttgggttct | ctccctcct  | tcctgttct  | cttatatacc | agtttatccc | c           | 3891 |

&lt;210&gt; 55

&lt;211&gt; 3954

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 55

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| tagatctctc | ggctctgagg | gacctgcag  | ggatctttga | attggtggaa | cttgttggaa | 120 |
| atggaacata | cgggcaagtt | tataagggtc | gtcatgtcaa | aacgggccag | cttgcagcca | 180 |
| tcaaggttat | ggatgtcaca | ggggatgaag | aggaagaaat | caaacaagaa | attaacatgt | 240 |
| tgaagaaata | ttctcatcac | cggaaatttg | ctacatacta | tggtgctttt | atcaaaaaga | 300 |
| accaccagg  | catggatgac | caactttggg | tggtgatgga | gttttgtggg | gctggctctg | 360 |
| tcaccgacct | gatcaagaac | acaaaaggta | acacgttgaa | agaggagtgg | attgcataca | 420 |
| tctgcaggga | aatcttacgg | gggctgagtc | acctgcacca | gcataaagtg | attcatcgag | 480 |
| atattaaagg | gcaaaatgtc | ttgctgactg | aaaatgcaga | agttaaacta | gtggactttg | 540 |
| gagtcagtgc | tcagcttgat | cgaacagtgg | gcaggaggaa | tactttcatt | ggaactccct | 600 |
| actggatggc | accagaagtt | attgcctgtg | atgaaaacc  | agatgccaca | tatgatttca | 660 |

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|-------------|-------------|-------------|-------------|------------|------------|------|
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| tctgtgacat  | gcaccccatg  | agagctctct  | tcctcatccc  | ccggaatcca | gcgcctcggc | 780  |
| tgaagtctaa  | gaagtgggtca | aaaaaattcc  | agtcatttat  | tgagagctgc | ttggtaaaga | 840  |
| atcacagcca  | gcgaccagca  | acagaacaat  | tgatgaagca  | tccatttata | cgagaccaac | 900  |
| ctaattgagcg | acagggtccgc | attcaactca  | aggaccatat  | tgatagaaca | aagaagaagc | 960  |
| gaggagaaaa  | agatgagaca  | gagtatgagt  | acagtgggaag | tgaggaagaa | gaggaggaga | 1020 |
| atgactcagg  | agagcccagc  | tccatcctga  | atctgccagg  | ggagtcgacg | ctgcggaggg | 1080 |
| actttctgag  | gctgcagctg  | gccacaagg   | agcgttctga  | ggccctacgg | aggcagcagc | 1140 |
| tggagcagca  | gcagcgggag  | aatgaggagc  | acaagcggca  | gctgctggcc | gagcgtcaga | 1200 |
| agcgcacga   | ggagcagaaa  | gagcagaggc  | ggcggctgga  | ggagatccca | catctggtag | 1260 |
| ctgtaaaatc  | ccagggaact  | gccttgaccg  | cctcccagtc  | agtgcacgag | cagcccacaa | 1320 |
| agggcctctc  | tgggtttcag  | gaggctctga  | acgtgacctc  | ccaccgcgtg | gagatgccac | 1380 |
| gccagaactc  | agatcccacc  | tcggaaaatc  | ctcctctccc  | cactcgcatt | gaaaagtttg | 1440 |
| accgaagctc  | ttggttacga  | caggaagaag  | acattccacc  | aaaggtgcct | caaagaacaa | 1500 |
| cttctatata  | cccagcatta  | gccagaaaga  | attctcctgg  | gaatggtagt | gctctgggac | 1560 |
| ccagactagg  | atctcaacct  | atcagagcaa  | gcaaccctga  | tctccggaga | actgagccca | 1620 |
| tcttgagag   | ccccttgag   | aggaccagca  | gtggcagttc  | ctccagctcc | agcaccctta | 1680 |
| gctcccagcc  | cagctcccaa  | ggaggctccc  | agcctggatc  | acaagcagga | tccagtggac | 1740 |
| gcaccagagt  | tcgagccaac  | agtaagtcag  | aaggatcacc  | tgtgcttccc | catgagcctg | 1800 |
| ccaaggtgaa  | accagaagaa  | tccagggaca  | ttaccgggcc  | cagtcgacca | gctgatctga | 1860 |
| cggcattagc  | caaagaacta  | agagaactcc  | ggattgaaga  | aacaaaccgc | ccaatgaaga | 1920 |
| aggtgactga  | ttactcctcc  | tccagtgagg  | agtcagaaag  | tagcgaggaa | gaggaggaag | 1980 |
| atggagagag  | cgagacccat  | gatgggacag  | tggctgtcag  | cgacataccc | agactgatac | 2040 |
| caacaggagc  | tccaggcagc  | aacgagcagt  | acaatgtggg  | aatgggtggg | acgcatgggc | 2100 |
| tggagacctc  | tcatgcggac  | agtttcagcg  | gcagtatttc  | aagagaagga | accttgatga | 2160 |
| ttagagagac  | gtctggagag  | aagaagcgat  | ctggccacag  | tgacagcaat | ggctttgctg | 2220 |
| gccacatcaa  | cctccctgac  | ctggtgcagc  | agagccattc  | tccagctgga | accccgactg | 2280 |
| agggactggg  | gcgcgtctca  | accattccc   | aggagatgga  | ctctgggact | gaatatggca | 2340 |
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<211> 3357

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<213> Homo sapiens

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|            |             |            |            |             |            |      |
|------------|-------------|------------|------------|-------------|------------|------|
| cttggccacg | aagaagatta  | cgctctgggg | aaggactgta | ttatgcacgg  | gtacatgctg | 1740 |
| aaactgggaa | acccatcttct | gactcagtgg | cagcgtcgct | atttttacct  | ctttccaaat | 1800 |
| agacttgaat | ggagaggaga  | gggagagtcc | cggagtgatc | cagagtttgt  | gcagtggaag | 1860 |
| aaagagttga | acgaaacctt  | caaggaggcc | cggcggctat | tgcgtcgtgc  | cccgaagttc | 1920 |
| ctcaacaaac | ctcggtcagg  | tactgtggag | ctcccaaagc | catccctctg  | tcacagaaac | 1980 |
| agcaacggcc | tctagcacc   | agaaacagg  | agggtcctcg | aggaggacac  | accaggtct  | 2040 |
| cagccttttg | gggtgaacga  | ggatgaggca | tctgatctat | tcgctaccgg  | gactcctcca | 2100 |
| ggctcccgag | aggagtcggg  | acccttcggc | ttggggtcag | ctcagctccc  | tgcttgtca  | 2160 |
| catttgtctg | cattagaaac  | tactgaagaa | ataaaagttc | tttttctttg  | ctacacactt | 2220 |
| tggtacctat | gaacctagaa  | cttgaagtga | ctcctactta | tcacgtaaat  | ttttatgtct | 2280 |
| gatatcaaac | acatcttaga  | ctccccagaa | tggaatttaa | agatgttcag  | tggtgggtaa | 2340 |
| cagattgccc | taagcattgc  | cacatattct | gtctagtcgc | tgctgatttt  | ctatgtcttt | 2400 |
| gctccatact | gcagggggat  | gggagagcca | cagtgtgttt | cttttgtgca  | cttcgcaact | 2460 |
| gacttcttgt | cctgggggta  | aaagttgaag | atattttctg | atgatattaa  | aagttgaaga | 2520 |
| tatttctgca | cttgggccct  | cctctgggag | cgcacccac  | atgactgccc  | tgctctgac  | 2580 |
| cagtctgttc | cggggccccc  | tcagccaggt | gggaatgacg | gacacgtact  | atccaagtgt | 2640 |
| atgggattaa | ctaatcattg  | aaggcattca | tccgtccatc | attggaaaga  | tttacagtga | 2700 |
| ttctgaagga | caggccgtgg  | agttttaggt | ttcaggggca | agagcagttt  | tcaaaagtct | 2760 |
| ttgagtccag | tgtgcacgag  | tcgacaagca | gtacctggca | tgccaggagca | ctcatgggtg | 2820 |
| agtccgtctc | aggtctcgac  | aattagcagt | tgtgtgacag | tcattctggg  | tccttctgcc | 2880 |
| tgaccctggg | agacatatca  | gtaatggatg | tacaaaagca | ggctctgttt  | atgtcttagt | 2940 |
| ataatttcag | atgaattgta  | ttgaaaaaat | gctgaggaat | gaatgtgtca  | aaatgggtta | 3000 |
| actgtgtata | ttgactttca  | tgctgtcatg | catctgtcat | gaatgaatga  | tactttgcac | 3060 |
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| ctgcctgtg  | aagtttgttt  | tctccactg  | cctccaggcc | ccactgatac  | ccccaaatag | 3180 |
| atgctggggt | atgagaacca  | gcgaaatccc | ccatgtcatc | agtcttaaaa  | aaaaaatttt | 3240 |
| acaaatccac | gtatttgtcc  | cattcttgga | gtagtcttag | tgtatgtctt  | tacattaact | 3300 |
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 <212> DNA  
 <213> Homo sapiens

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|            |            |            |            |            |            |      |
|------------|------------|------------|------------|------------|------------|------|
| ccaaagtgtt | tgggagcctt | gaaagggggt | tggataaggt | tatcactgtg | ctcaccagga | 1620 |
| gcaaaaggaa | gggttctgcc | agagacgggc | ccagaagact | aaagcttcac | tataatgtga | 1680 |
| ctacaactag | attagtgaat | ccagatcaac | tggttgatga | aataatgtct | attcttccaa | 1740 |
| agaagcatgt | tgactttgta | caaaaggggt | atacactgaa | gtgtcaaaca | cagtcagatt | 1800 |
| ttgggaaagt | gacaatgcaa | tttgaattag | aagtgtgcc  | gcttcaaaaa | cccgatgtgg | 1860 |
| tgggtatcag | gaggcagcgg | cttaagggcg | atgcctgggt | ttacaaaaga | ttagtggaag | 1920 |
| acatcctatc | tagctgcaag | gtataattga | tggattcttc | catcctgccg | gatgagtgtg | 1980 |
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<210> 58  
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 <212> DNA  
 <213> Homo sapiens

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| agcatggacc | aaagagaaat  | tctgcagaag | ttcctggatg  | aggcccaaag | caagaaaatt  | 120  |
| actaaagagg | agtttgccaa  | tgaatttctg | aagctgaaaa  | ggcaatctac | caagtacaag  | 180  |
| gcagacaaaa | cctatcctac  | aactgtggct | gagaagccca  | agaatatcaa | gaaaaacaga  | 240  |
| tataaggata | ttttgcccta  | tgattatagc | cgggtagaac  | tatccctgat | aacctctgat  | 300  |
| gaggattcca | gctacatcaa  | tgccaacttc | attaagggag  | tttatggacc | caaggcttat  | 360  |
| attgccaccc | agggtccttt  | atctacaacc | ctcctggact  | tctggaggat | gatttgggaa  | 420  |
| tatagtgtcc | ttgaaactcg  | aactatctac | cagtttctatt | acgagaattg | gccagaccat  | 480  |
| gatgtacctt | catctataga  | ccctattctt | gagctcatct  | gggatgtacg | ttgttaccaa  | 540  |
| gaggatgaca | gtgttcccat  | atgcattcac | tgcagtgtctg | gctgtggaag | gactgggtgtt | 600  |
| atttgtgcta | ttgattatac  | atggatgttg | ctaaaagatg  | ggataattcc | tgagaacttc  | 660  |
| agtgttttca | gtttgatccg  | ggaaatgcgg | acacagaggc  | cttcattagt | tcaaacgcag  | 720  |
| gaacaatatg | aactgggtcta | caatgctgta | ttagaactat  | ttaagagaca | gatggatgtt  | 780  |
| atcagagata | aacattctgg  | aacagagagt | caagcaaagc  | attgtattcc | tgagaaaaat  | 840  |
| cacactctcc | aagcagactc  | ttattctcct | aatttaccaa  | aaagtaccac | aaaagcagca  | 900  |
| aaaatgatga | accaacaaaag | gacaaaaatg | gaaatcaaag  | aatcttcttc | ctttgacttt  | 960  |
| aggacttctg | aaataagtgc  | aaaagaagag | ctagttttgc  | accctgctaa | atcaagcact  | 1020 |
| tcttttgact | ttctggagct  | aaattacagt | tttgacaaaa  | atgctgacac | aaccatgaaa  | 1080 |

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<210> 59
<211> 2611
<212> DNA
<213> Homo sapiens

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<210> 63

<211> 1129

<212> DNA

<213> Homo sapiens

<400> 63

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|-------------|------------|-------------|------------|------------|------------|------|
| tggtctggcgt | cagaaacagg | ctgctcaagt  | tcccagagat | cgtggccccc | ctcctgacct | 660  |
| caatagatgc  | catctccctg | gagtgtgagc  | gcgtgctggg | agagatgggg | gaagccccag | 720  |
| ccccggagca  | gtacctcgtg | ctggaagagc  | tcattgacat | gaaccagcac | catctgaatg | 780  |
| ccctcggcgt  | gggccacgcc | tctctggacc  | agctctgcc  | ggtgaccagg | gcccgcggac | 840  |
| ttcacagcaa  | gctgactggc | gcaggcgggtg | gtggctgtgg | catcacactc | ctcaagccag | 900  |
| gtatccccggg | gggctggagc | agccagaagt  | ggaggccacg | aagcaggccc | tgaccagctg | 960  |
| tggtctttgac | tgcttgga   | ccagcatcgg  | tgcccccggc | gtctccatcc | actcagccac | 1020 |
| ctccctggac  | agccgagtcc | agcaagccct  | ggatggcctc | tgagaggagc | ccacgacact | 1080 |
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 <212> DNA  
 <213> Homo sapiens

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| gaaaacacac  | ctagatcaaa ggtttttgaa aataaagtta attcagagaa ggtaaaactt 180  |
| tctcttcogga | atttcccaca taatgattat gaggatgttt ttgaagagcc ttcagaaagt 240  |
| ggcagtgate  | ccagcatgtg gacagccaga ggcccccttca gaagaggcag gtggagcagt 300 |
| gaggatgagg  | aggctgcagg gccatcacag gctctctccc ctctactttc tgatacgcg 360   |
| aaaattgttt  | ctgaaggaga actagatcag ttggctcaga ttcggccatt aatattcaat 420  |
| tttcatgagc  | agacagccat caaggattgt ttgaaaatcc ttgaggaaaa aacagcagcg 480  |
| tatgatataca | tgcaggaatt tatgttcaac atcatggata tagtggccca aatgagagaa 540  |
| caacgttctg  | gcatggttca aacgaaggag cagtatcact tttgttacga tattgtgctt 600  |
| gaagttcttc  | ggaaacttct gactttggat taagaaagac ttctgttgcc tctcacttga 660  |
| aattaccaag  | tgggtttgca cctccta 687                                      |

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 <212> DNA  
 <213> Homo sapiens

|            |   |
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|            |             |             |            |            |             |      |
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| ggaaaaccaa | cggtgcagct  | ggccgcggtg  | tccctgagaa | aagtcagaaa | tgGCCaatga  | 120  |
| agcttttgct | tataaaagga  | atgcgatggt  | aattctgggg | cattgatggt | ttacaatgcc  | 180  |
| tgatcaagat | aaaaaggtga  | agaccacaga  | aaaatcaact | gataaacagc | aagaaatcac  | 240  |
| catcagggac | tattcagatc  | ttaaaagact  | tcggtgcctt | ttgaacgtcc | aatcaagcaa  | 300  |
| acaacagctt | ccagccatta  | acttcgatag  | tgcccaaaat | agcatgacga | agtctgagcc  | 360  |
| cgccatcagg | gcgggtggac  | acagagctcg  | gggtcagtg  | catgaatcca | cagaagctgt  | 420  |
| tgaacttgaa | aatttttagta | taaactacaa  | gaatgagaga | aatttcagca | aacatcctca  | 480  |
| gcgtaaacta | tttcaggaga  | tctttaccgc  | cttggtgaaa | aatagactca | taagcagaga  | 540  |
| gtgggttaat | cgagcccat   | ctattcattt  | tctgagagt  | ttaatctgtc | tgaggctact  | 600  |
| aatgagggat | ccatgttatc  | aggaaatact  | ccatagcttg | ggtgggattg | aaaacctagc  | 660  |
| tcagtatatg | gagattgtag  | ccaatgagta  | cctcggctat | ggagaagagc | agcacactgt  | 720  |
| ggacaagctg | gtcaacatga  | catatatttt  | tcaaaaactt | gctgcagtca | aagatcaaag  | 780  |
| agaatgggtc | accacaagt   | gagcccacaa  | gacattagta | aatttacttg | gtgcccagaga | 840  |
| tactaatggt | ctattgggtt  | cccttctggc  | tctggctagt | ttagcagaaa | gtcaagaatg  | 900  |
| tagggagaag | ataagtgaac  | tcaacattgt  | agaaaatctg | ttgatgattt | tacatgaata  | 960  |
| tgacttgctt | tctaaaagac  | taacagcgga  | gttgctgcgc | ctactttgtg | cagagcccca  | 1020 |
| ggtgaaagag | caggtgaagc  | tctatgagg   | gataccggtc | ctcctcagtc | tgctccactc  | 1080 |
| tgaccacttg | aagctcctct  | ggagcattgt  | ctggattctg | gtacagggtt | gtgaggaccc  | 1140 |
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| aggagacaga | aattttgttt  | ctgatcactc  | ctccattgga | agcctgtcca | gtgcaaattgc | 1260 |
| tgcaggccga | atccagcagc  | ttcattttatc | agaagacttg | agccctagg  | aaatacaaga  | 1320 |
| aaatactttc | tcaattcaag  | cagcctgctg  | tgctgccctc | actgagctgg | tgctcaatga  | 1380 |
| caccaatgcc | caccaggtgg  | ttcaggaaaa  | tggtgtatat | acaatagcaa | aattaatttt  | 1440 |
| accaaataag | caaaagaatg  | cagcaaaaag  | taatctatta | cagtgttatg | ctttcagagc  | 1500 |
| cttgagattt | ctcttcagta  | tggaagaaa   | cagaccactc | tttaaaagac | ttttccccac  | 1560 |
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| ggatcatctt | ggaagtggag  | cttttggtg   | tgtttacaag | gttagaaagc | atagtgggtca | 1800 |



|             |             |            |             |            |            |      |
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| aaatctttta  | gcaatgaaag  | aggtcaatth | acataaccca  | gcatttgga  | aggataagaa | 1860 |
| agatcgagac  | agcagcgtaa  | ggaatattgt | ttctgaatta  | acaataatta | aagagcagct | 1920 |
| ttatcatccc  | aacattgtac  | gttattacaa | aacattttctg | gaaaacgata | ggttgtagat | 1980 |
| agttatggag  | ctgatagaag  | gagccccgct | tggagagcat  | ttcagttctt | tgaaggaaaa | 2040 |
| acatcaccat  | tttactgaag  | aaagactatg | gaaaatatth  | atacagctgt | gcttagctct | 2100 |
| tcgatactta  | cacaaggaga  | agaggattgt | ccatagagat  | ctgacaccaa | acaacattat | 2160 |
| gttgggggat  | aaggacaaaag | taacagttac | tgactttggc  | ctggcaaagc | aaaaacaaga | 2220 |
| aaacagtaaa  | ctcacgtctg  | tggttggaac | aatcctgtat  | tcttgccccg | aggtactgaa | 2280 |
| gagtgaagcg  | tatggggaga  | aggctgatgt | ctgggcagta  | ggctgcatcc | tttatcagat | 2340 |
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| ggaggcggtta | tatgaaccag  | tgccagaagg | tatctactct  | gaaaaagtaa | cagacaccat | 2460 |
| cagcaggtgc  | ctcactcctg  | atgcggaagc | tcgtccagat  | attgtagaag | tcagttcgat | 2520 |
| gatatcagat  | gtcatgatga  | aatatttaga | caacttatct  | acatcccagt | tgctccttga | 2580 |
| aaagaagcta  | gaacgggaac  | gaagacgcac | acaaagggtat | tttatggaag | ccaaccggaa | 2640 |
| caccgtcaca  | tgtaaccatg  | agctggctgt | tctatctcac  | gagacctttg | agaaggcaag | 2700 |
| tttgagtagc  | agcagcagtg  | gagcagccag | cctgaaaagt  | gaactttcag | aaagcgcaga | 2760 |
| cctgccccct  | gaaggcttcc  | aggcctccta | tggtaaagac  | gaagacaggg | cctgtgacga | 2820 |
| aatcctgtca  | gatgataact  | tcaacctgga | aatgctgag   | aaagatacat | attcagaggt | 2880 |
| agatgatgaa  | ttggacattt  | cggataactc | cagcagctcc  | agttcaagcc | ctctgaaaga | 2940 |
| atctacattc  | aacattttta  | agagaagttt | tagtgcttca  | ggaggagaaa | gacaatccca | 3000 |
| aacaaggga   | ttcactggag  | gaacaggatc | aagaccaaga  | ccagggccac | agatgggcac | 3060 |
| attcttgtgg  | caagcatcag  | caggaattgc | tgtgtcccag  | aggaaagtgc | gtcagatcag | 3120 |
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| cagccagcag  | agtaaccctt  | gtaatttgaa | atctgaaatt  | aaaaagtatt | ctcagggatc | 3300 |
| tccagaaccg  | attgagccca  | actttttcac | agcagattac  | catttattac | atcgttcatc | 3360 |
| cgggtggaac  | agcctgtccc  | caaatgaccc | tacaggttta  | ccaaccagca | ttgaattgga | 3420 |
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| ctattacaat  | tttacatcta  | acaggtatca | ttcctatcca  | tgggggacca | agaatcacc  | 3540 |

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<211> 3229

<212> DNA

<213> Homo sapiens

<400> 66

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| tgggtccagaa | gtgtaaaata  | caaaaagtga  | gattccaggg | aaagtgccca  | ccaagatcaa | 1260 |
| ggatatctgt  | gccaatataa  | aggaatgcta  | tattgcatag | aatgaatgg   | agaccaccag | 1320 |
| ctggagccca  | gaaggccaga  | tctataaaaa  | tgatagaaag | acccaaaatt  | gctgctgtct | 1380 |
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| caagttatca  | ccctattcct  | caagaaaata  | ctggagttga | ggattacggt  | caggaaacga | 1500 |
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| aacagtacca  | caatgacatg  | aaagaaatta  | gaaagaagat | ggggagagaa  | ccagaggaga | 1800 |
| actcaaaaat  | aagtcataaa  | acctatttgg  | tgaagaagag | taacctgcct  | gtccatcaag | 1860 |
| atgcatctga  | gggagaagca  | cctgtgcagg  | acattgaaaa | agacttgaaa  | caaatgaggc | 1920 |
| ttcagaacac  | aaaggaaaagt | aaaaatccag  | aacagaaata | taaagctaag  | ggggtaaaat | 1980 |
| ttgaaattaa  | tttagacaaa  | tgtatttctg  | atgaaaacat | cctccaagag  | gaagaggcaa | 2040 |
| tggatatacc  | aatgaaaact  | ttgaccttgg  | aggatggcat | gaagttaaag  | gaatatgaat | 2100 |
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| tagtagaata  | cttagaaaaa  | ctcgctactt  | tcaaagggga | agaaaaaaca  | gaagaggcct | 2640 |
| ccagtacctc  | taaggactct  | agaaagtcaa  | gagaaagaga | ggggataagt  | atgcagaaat | 2700 |
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<213> Homo sapiens

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<212> DNA

<213> Homo sapiens

<400> 72

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|            |            |             |             |             |             |      |
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| aacctaaagg | cagaccaga  | agagcttttt  | acaaaactag  | agaaaattgg  | gaagggctcc  | 420  |
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| agagagagcc | caggcaccag  | ggctaccact  | ggaacctgcc  | tcagcgtcaa | ctgctgctgg  | 3900 |
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&lt;211&gt; 3276

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&lt;400&gt; 73

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| cagccgggtg | ttggccccgc | cccgcgctgt | gacgtcggcg | gcgcgcgccc | ccggcgccgt | 120 |
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| agggccggag | aatgtccaag | gccggcgggg | gccggagcag | ccacggcatc | cggagctcgg | 780 |



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&lt;211&gt; 3910

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 74

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<211> 4380
<212> DNA
<213> Homo sapiens

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| ctgcaggaac  | atgcacgcct | ggctgcggca  | ggaccacaag | aacgtctgcg | tcgtgcaactg | 1920 |
| catggacggg  | agagccgcgt | ctgctgtggc  | cgtctgctcc | ttcctgtgct | tctgccgtct  | 1980 |
| cttcagcacc  | gcggaggccg | ccgtgtacat  | gttcagcatg | aagcgctgcc | caccaggcat  | 2040 |
| ctggccatcc  | cacaaaaggt | acatcgagta  | catgtgtgac | atggtggcgg | aggagcccat  | 2100 |
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| cgggtccactc | tggggcgccg | gctgcaggcc  | aagatggcat | ccatgaagat | gttcagatt   | 2400 |
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| agggggctga  | acccccaaat | cctgttttcc  | agccgggagg | agcagcaaga | cattctgtct  | 2640 |
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&lt;211&gt; 4293

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&lt;213&gt; Homo sapiens

&lt;400&gt; 76

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&lt;210&gt; 83

&lt;211&gt; 1955

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 83

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<212> DNA

<213> Homo sapiens

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| ttttgtacta | aataatagaa  | aatatttata | ttctttgagt | gtgagctttg | aatagatggc  | 5820 |
| attatcactt | tattgttttt  | ttaacaaaaa | ctttttctca | attattctat | tgcaatgtta  | 5880 |
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5